April
1931

AMERICAN GAS ASSOCIATION MONTHLY

Memphis Beckons Natural Gas Men to Convention

Modern Gas Service
CLIFFORD E. PAIGE

Dealer Cooperation
JAMES M. CONNOLLY

Gas Appliances Speed Passing of Blue Monday
A. J. PETERS

Automatic Gas Ovens Speed Production
J. B. NEALEY

Economics of Increasing Capacity of Gas Pipe Lines
J. C. LICHTY and R. L. ANTHONY

A Practical Training For Better Public Contacts
GORDON M. PETERSON

Two Gas Advertisements Win Harvard Award

RESULTS • •
SPEAK FOR THEMSELVES

What the A. G. A. Course in Employee Customer Relations Has Accomplished in Other Companies—It Can Do in Yours

THE PROOF of its possibilities, based on actual experience, is conclusively presented in a brochure, "Training in Friendship."

A copy of this brochure will be sent on request to all member company executives concerned with the highly important matter of maintaining and improving customer relations.

AMERICAN GAS ASSOCIATION
420 LEXINGTON AVENUE NEW YORK, N. Y.

AMERICAN GAS ASSOCIATION MONTHLY

Allyn B. Tunis, Editor

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VOLUME XIII · APRIL, 1931 · NUMBER 4

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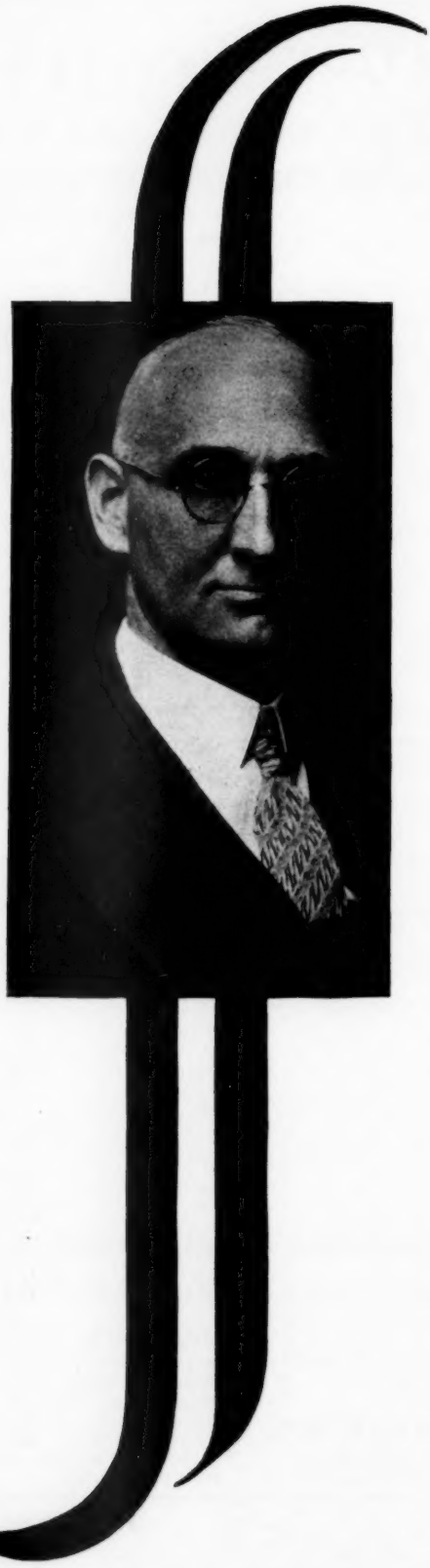
OUR OWN WHO'S WHO



Percy S. Young

LXXI

PERCY S. YOUNG, vice-president of Public Service Electric and Gas Company, first became associated with public utility work in 1890, when he entered the employ of the Omaha Gas Company as a collector. The Omaha Gas Company was controlled by The United Gas Improvement Company, and in 1895 Mr. Young was employed as a traveling auditor by that company, with headquarters in Philadelphia. In 1898 he was made assistant agent of the Jersey City Office of The United Gas Improvement Company, which was lessee of several of the gas companies in Jersey City, New Jersey. In 1899 they were merged into Hudson County Gas Company, of which he became assistant treasurer and later secretary. In 1903 Public Service Corporation of New Jersey was formed and Mr. Young was made comptroller. In 1914 he was made treasurer and in 1917 vice-president. Mr. Young has been active in national utility association work for many years. He is at present a member of the Board of Directors of the American Gas Association. He is a past-president of the National Commercial Gas Association and of the Eastern States Gas Conference. Back in the late 'nineties Mr. Young was a member of the practical class taught by correspondence under the direction of the Trustees—Gas Educational Fund of the American Gas Light Association, of which Dr. Walton Clark was chairman. Mr. Young is a director of Public Service Corporation of New Jersey and its subsidiary companies, of which Public Service Electric and Gas Company is one, United Engineers & Constructors, Inc., Fidelity Union Trust Company, Fidelity Union Title and Mortgage Guaranty Company, Fidelity Union Stock and Bond Company, Firemen's Insurance Company and The American Superpower Corporation. He is also a member of the Council of New York University, from which university he received the degree of Bachelor of Commercial Science in 1908.

AMERICAN
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MONTHLY

VOLUME XIII APRIL, 1931 NUMBER 4

H. C. Cooper

Natural Gas Leaders On Convention Program

MEMPHIS, TENNESSEE, is beckoning all natural gas men. They will assemble there on May 11 for their annual convention, which will last four days. This event, which is directed by the Natural Gas Department of the American Gas Association, is expected to draw a record-breaking attendance.

The program, nearly complete, promises to be one of the best-rounded yet attempted. "Gas, Its Place in Our Time," is expected to be the keynote of the gathering and it is likely that this will be the theme of R. W. Gallagher, who has been invited to sound it, and who is hoping he can accept.

Hotel reservations should be made at once. While all sessions will be held at the Hotel Peabody, other hotels are conveniently located for those who will be in attendance. For the benefit of the reader a table is published herewith showing available hotel accommodations.

Again the railroads have agreed to grant reduced fares, and will allow a reduction for members of the A. G. A. and dependent members of their families. Members are urged to take advantage of the lower fare, which will permit them to make the round-trip to-and-from their homes and Memphis on the basis of one and one-half fares. Detailed information regarding fares will be distributed to the membership, and also may be had by applying to E. J. Stephany, secretary, Natural Gas Department, American Gas Association, Allen Building, Dallas, Texas.

Many prominent men in the industry are planning to attend the convention, and some have accepted invitations to take part in the program. These latter include B. H. Gardner, Columbia Gas & Electric Corporation, Columbus, Ohio; L. L. Dyer, Lone Star Gas Company, Dallas, Tex.; H. J. Hoover, editor of *Natural Gas,* Cincinnati, Ohio; H. D. Hancock, Henry L. Doherty & Co., New York; H. S. Bean, United States Bureau of Standards, Washington, D. C.; W. B. Berwald, U. S. Bureau of Mines, Bartlesville, Okla.; E. L. Rawlins, United States Bureau of Mines, Bartlesville; P. McDonald Biddison, Southern Natural Gas Corporation, Birmingham, Ala.; J. French Robinson, Hope Natural Gas Company, Pittsburgh, Pa.; B. M. Nowery, United States Public Service Company, Houston, Tex.; J. B. Tonkin, Peoples Natural Gas Company, Pittsburgh; E. N. Watkins, Arkansas Natural Gas Corporation, Shreveport, La.; J. A. Martin and L. B. Denning, Jr., Lone Star Gas Company, Dallas; G. J. Heckendorn, Public Service Company of Colorado, Denver, Colo.; D. A. Sillers, Lone Star Gas Company, Dallas; John C. Diehl, Metric Metal Works, Erie, Pa.; S. W. Meals, Carnegie Natural Gas Company, Pittsburgh; R. M. Stuntz, Cities Service Gas Company, Bartlesville, and others who had not accepted invitations at the time this is written.

The Natural Gas Department will be represented by its chairman, H. C. Cooper; vice-chairman, H. L. Montgomery, and secretary, Mr. Stephany.

Speakers from headquarters of the American Gas Association will include Alexander Forward, managing director, and E. D. Milener, industrial research representative.

An attractive program of entertainment features has been prepared for members and their wives. This will include an old-time Southern barbecue, sight-seeing and golf, wrestling bout, ball, cabaret banquet, theater party, luncheon and musicale, and bridge luncheon.

H. L. Montgomery

The following committees are in charge of convention arrangements:

General Arrangements Committee—W. J. O'Brien, chairman, Memphis, Tenn.; B. C. Adams, Kansas City, Mo.; J. B. Corrin, Pittsburgh, Pa.; H. L. Dickerson, Houston, Texas; Edgar G. Hill, New York City, N. Y.; Alfred Hurlburt, Chicago, Ill.; William Moeller, Jr., Los Angeles, Calif.; J. R. Munce, Shreveport, La.; F. F. Schauer, Pittsburgh, Pa.; D. C. Shaffer, Memphis, Tenn., and T. R. Weymouth, New York, N. Y.

Program Committee—E. F. Schmidt, chairman, Dallas, Texas; W. A. Dunkley, Memphis, Tenn.; L. Fitzpatrick, Salt Lake City, Utah; T. H. Kerr, Columbus, Ohio; J. H. Maxon, Omaha, Nebr.; A. E. Merchant, New Orleans, La.; H. L. Montgomery, Bartlesville, Okla.; W. B. Trammell, Houston, Texas; George Wehrle, Denver, Colo., and W. S. Yard, San Francisco, Calif.

Publicity Committee—Paul Renshaw, chairman, Memphis, Tenn.; J. C. Barnes, New Orleans, La.; William C. Grant, Dallas, Texas; C. D. Greason, Kansas City, Mo., and R. S. McBeth, Tulsa, Okla.

Hotels Committee—J. J. Brennan, chairman, Memphis, Tenn.

Reception Committee—W. N. Ford, chairman, Memphis, Tenn.

Below is given an outline of the tentative program as arranged at this writing:

TUESDAY, MAY 12

MORNING—9:30 O'CLOCK

Opening Remarks by the Chairman.

H. C. Cooper, Chairman, Natural Gas Department.

Invocation.

Very Reverend Israel H. Noe, Dean of Saint Mary's Cathedral, Memphis, Tenn.

Address of Welcome.

Hon. Watkins Overton, Mayor of Memphis.

Address of the Chairman.

H. C. Cooper, Hope Natural Gas Company, Pittsburgh, Pa.

Appointment of Committee on Chairman's Address.

H. L. Montgomery, Vice-Chairman, Natural Gas Department.

Address.

Alexander Forward, Managing Director, American Gas Association.

Selling Natural Gas.

B. H. Gardner, Columbia Gas and Electric Corporation, Columbus, Ohio.

TUESDAY AFTERNOON

2:00 O'CLOCK

Natural Gas Statistics—Their Value.

L. L. Dyer, Lone Star Gas Company, Dallas, Texas.

Wrinkles.

H. J. Hoover, Cincinnati, Ohio.

Our Main Technical and Research Committee.

H. D. Hancock, Henry L. Doherty and Company, New York, N. Y.

Gas Measurement.

H. S. Bean, U. S. Bureau of Standards, Washington, D. C.

Pipe Line Flow.

W. B. Berwald, U. S. Bureau of Mines, Bartlesville, Okla.

Gas Well Deliveries.

E. L. Rawlins, U. S. Bureau of Mines, Bartlesville, Okla.

Utilization Research and Gas for Cooling.

E. D. Milener, American Gas Association, New York, N. Y.

Compression and Transmission of Natural Gas.

P. McDonald Biddison, Southern Natural Gas Corporation, Birmingham, Ala.

WEDNESDAY, MAY 13

MORNING—9:30 O'CLOCK

Drilling Symposium.

The entire morning will be given over to a discussion of drilling. Each speaker, following a prescribed outline for easy comparison, will give a presentation on the subject covering his section of the country. After the three presentations, the meeting will be open for a general discussion of drilling.

WEDNESDAY AFTERNOON

2:00 O'CLOCK

Natural Gas Fellowships.

J. B. Tonkin, Peoples Natural Gas Company, Pittsburgh, Pa.

A Uniform Classification of Accounts.

E. N. Watkins, Arkansas Natural Gas Corporation, Shreveport, La.

Detection and Prevention of Distribution System Leakage.

J. A. Martin and L. B. Denning, Jr., Lone Star Gas Company, Dallas, Texas.

Modernism in Distribution Design and Operation.

G. J. Heckendorn, Public Service Company of Colorado, Denver, Colo.

E. J. Stephany

The Origin of Dust and Its Elimination.

D. A. Sillers, Lone Star Gas Company, Dallas, Texas.

Field Testing of Large Positive Meters. John C. Diehl, Metric Metal Works, Erie, Pa.

THURSDAY, MAY 14

MORNING—9:30 O'CLOCK

Production Symposium.

Three speakers will follow a prescribed outline and will deal with the subject for their sections of the country. The meeting will be open for a general discussion after the three presentations.

Report of Committee on Chairman's Address.

Report of Committee on Final Resolutions.

Closing Remarks.

Hotel Accommodations at Memphis

		Rates with Bath	Rates without Bath
Peabody (headquarters)	625 Rooms	Single $3.50 and up	None
		Double $5.50 and up	None
Claridge (6 blocks from hdqtrs.)	400 Rooms	Single $3.00 and up	None
		Double $4.50 and up	None
Gayoso (2 blocks from hdqtrs.)	300 Rooms	Single $3.00—$6.00	$2.00—$2.50
		Double $5.00—$7.50	$3.00—$4.00
Parkview (2 miles from hdqtrs.)	200 Rooms	Single $3.50	None
		Double $6.00	None
Chisca (5 blocks from hdqtrs.)	350 Rooms	Single $2.00—$6.00	$2.00
		Double $4.50—$7.50	$2.00
William Len (2 blocks from hdqtrs.)	250 Rooms	Single $2.50—$3.00	None
		Double $4.50—$7.50	None
Ambassador (7 blocks from hdqtrs.)	140 Rooms	Single $1.50—$2.00	None
		Double $2.50—$3.00	None
Adler (5 blocks from hdqtrs.)	200 Rooms	Single $3.50—$5.00	$1.50
		Double $3.50—$5.00	$2.50—$3.00
Tennessee (across street from hdqtrs.)	200 Rooms	Single $2.00—$3.00	None
		Double $3.00—$4.50	None
Elks' Club (6 blocks from hdqtrs.)	150 Rooms		

Gas Appliances Speed Passing of Blue Monday*

By A. J. PETERS

General Sales Manager, Consolidated Gas Company of New York

SOMEONE has said that the only permanent thing in this world is change; it might be paraphrased to state that the only modern thing is modernization. The complexities of our social and economic lives demand changes—changes in methods of production and distribution, changes in living habits, changes in methods of office and shop routine, changes in tastes in amusements, changes in means of travel and changes in ways of obtaining relaxation. Change upon change—ever moving and mobile—never satisfied.

That is all a product of our age. An age that accepts luxuries with nonchalance—and mentally, at least, classifies them as necessities that would have been undreamed of with your fathers and mine. An age that turns the first page of the morning newspaper with its account of a daring Englishman speeding across the sand in Florida at the rate of 245 miles an hour to find a new thrill in the story of a telephone conversation between two points thousands of miles apart—across seas and deserts and perhaps from ship to shore. An age that accepts, yes demands, that something new be crowded into every minute of its existence. We who are privileged or condemned—whichever way you happen to feel about it—to live in this age accept as a part of our everyday lives as a commonplace the opportunity of turning the dials of an instrument called a radio and hearing the voice of the head of a powerful religion thousands of miles away delivering a message to all who might hear and with perfect equanimity turn to the latest tintinnabulations of tin pan alley just around the corner. We who express little if any surprise at the miracle of transforming in but a few minutes a mass of metal, wood, and rubber into an automobile moving off the production line under its own power can be excused for expecting the unusual in our places of abode.

As business men, mechanics, clerks or whatever our professions or callings may be, we would find our duties increasingly irksome without the benefits of labor saving tools, equipment, and machinery. Adding machines, typewriters, and uncanny pieces of office furniture that print, type, and tabulate bills and invoices with breath-taking accuracy and speed are all part and parcel of the equipment of even the smallest of modern offices. Extension telephones for step-saving, secretaries for shock absorbers or buffers—all are required to save the time, energy, and nerves of the tired business man. No factory or plant is considered modern or even economic unless it is equipped with labor saving machines, devices, equipment, and facilities for the creature comforts of the workers. Is it any wonder then that our wives and daughters have come to look for similar accessories for the most important of all work-shops—the home?

Just as it is true that man would rebel if he were obliged to perform his tasks in the old laborious ways of a few generations ago, so is it agreed that no one wants the woman to continue in the old ways—glamorous and enchanting though time may have made some of them. Apropos of all this was an interesting article in a recent edition of the *Evening Sun*. An old timer speaking to two of his younger friends of the good old days of thirty-five and forty years ago says—

"I remember well when a boy how the whole family looked forward to Monday with dread. In the days of forty years ago Monday was washday for every housewife, while Tuesday was devoted to ironing. We lived over on the lower East Side and many of the houses then only had a pump in the back yard to supply water for the tenants, while more improved tenements had water in the hallway for the tenants on each particular floor. But we were not fortunate enough to have such an improvement. We had to go down four flights of stairs to the back yard for our water.

"Well, that meant work for the youngsters. Every Sunday night we had to go down to the yard and fill three or four wooden tubs with water from the pump and carry it upstairs, so that everything would be in readiness for mother to do her washing the next day and hang it out on the clothesline. If the day was not fair, and there was either rain or snow, mother could not hang out the wash for drying and that only made more work. She would then have to wait until the next day, and that often meant drudgery for almost the entire week. Now, however, thanks to the many inventions and improvements, the housewife has been emancipated and Blue Monday has disappeared like so many other things into the past.

"The much dreaded Blue Monday is just a memory to many, and I think that this is one of the best things that has happened. Nowadays the housewife can sit down and listen to the radio or go out and get the fresh air, and have not the least worry about her washing. The present generation will never appreciate what

(Continued on page 182)

*Address delivered before dinner meeting of the New York Building Superintendents' Association.

Modern Gas Service*

By CLIFFORD E. PAIGE
President, American Gas Association

C. E. Paige

WE used to sell gas by the thousand feet; then we sold it by the hundred cubic feet; now we have come to the therm. All these units of measurement are designed from the viewpoint of the gas company for its convenience.

The consumer, however, is not so much concerned with our unit of measurement as he is with what he gets for what he pays. The sale of gas is the sale of a service. The gas meter measuring only gas falls far short of its opportunities; it must serve rather as a medium for the determination of the satisfaction furnished the customer. It is the yard stick of service.

Recently, a great many letters were addressed to representative gas companies throughout the country, asking executives to make recommendations for the increase of gas sales. The replies which came in offered many valuable hints but the letters in one respect were unanimous. Every one agreed that the gas business needed sales—more volume—and that regardless of all that had been done in the past, only the utmost in service would be satisfactory for the future.

We have more influences affecting gas sales today than ever before in history. We have stronger and better organized competition from several sources and on the domestic side, we have the factor of changes in habits of living.

Years ago, it might have been satisfactory to answer consumers' complaints casually and at the convenience of some individual; today requests for attention must be met in terms of hours and often in terms of minutes.

Some of these lessons we learn from our experience and some from our competitors. Those we learn from our competitors often come so late that we have already suffered from our improvidence.

The gas industry, both in the manufactured and natural gas fields, has made a remarkable record during recent periods. What other business can show a decline of only one-tenth of one per cent through 1930, as the manufactured gas industry does? The natural gas industry shows a decrease of only 1.4 per cent in the same year. The difference in percentage is, of course, due to the larger proportion of natural gas used for industrial purposes.

The production of bituminous coal declined 14 per cent and of anthracite, 5 per cent, crude petroleum 11 per cent, electricity 1.8 per cent.

Your own State of Illinois shows a little more loss than the country as a whole because of the large amount of industrial business in your great cities. The statistics report that your sales of manufactured gas decreased 2.3 per cent, while the reduction in coal produced was 12 per cent.

On the whole, it must be admitted that the gas business has come through this trying period in a most satisfactory manner, but this is no guarantee that it will hold its position.

Added to the direct competition now being felt in the business is the indirect reflection of hostility and antagonism on the part of plumbers and dealers in certain communities having gas service. If there are twenty plumbers in your town, is it better business for the gas company to have them working for or against you?

Satisfactory agreements are not easy but enough relations have been established to make it idle for any one to contend that the proposition cannot be worked out. It involves patience and foresight, and above all, a sense of fairness. Reasonable tolerance on both sides is assured when the responsible representatives of the gas company meet equally responsible representatives of dealers.

I have referred to plumbers but the relationship must extend to those who merchandise appliances for consuming gas or competitive fuels, as well as to those who are interested only in installation work. The gas industry has done a great work in the development of these relations. In fact, I have been told, within a week, that certain of your cities have done remarkably well.

If the utility goes out of the merchandising business, the end of the business is in sight because it has been demonstrated over and over again that dealers alone would make no progress in developing more highly efficient equipment. The impetus for sales is lost.

The plumber does not look upon himself as essentially a merchandiser. Experience shows that where a utility even temporarily has gone out of the appliance business, plumbers and dealers have welcomed their return to this activity. The utility must pioneer in development work. It may establish a public interest in its appliances and after that, the plumber or dealer may fill the need.

Besides this utilization of assistance in selling and the high standard of service which we all agree is necessary, we have still another most important activity,—one which your own people have frequently brought out in discussion at national meetings—namely, that of advertising.

If your product and what you can do for the user of it are satisfactory, surely you are within your rights if you tell others about it. If the industry has developed an equipment which will accomplish certain results better than has been done before, you not only have the right but you have an obligation to make such equipment publicly known and widely available.

If there is a situation which involves a change either in policy or rate, the public is certainly entitled to all the facts regarding it, that is, if you would hold the public as your friend.

(Continued on page 182)

* Presented before the Illinois Gas Association, at Springfield, Ill., March 12.

Dealer Cooperation Plan That Works

By JAMES M. CONNOLLY
The Brooklyn Union Gas Company
Brooklyn, N. Y.

HONEST cooperation may be advanced as one of the reasons for the success attained by the dealer-cooperation movement in the territory served by The Brooklyn Union Gas Co. That cooperation was given by the gas company throughout the year 1930 and was enthusiastically received by the master plumbers and other dealers in the territory.

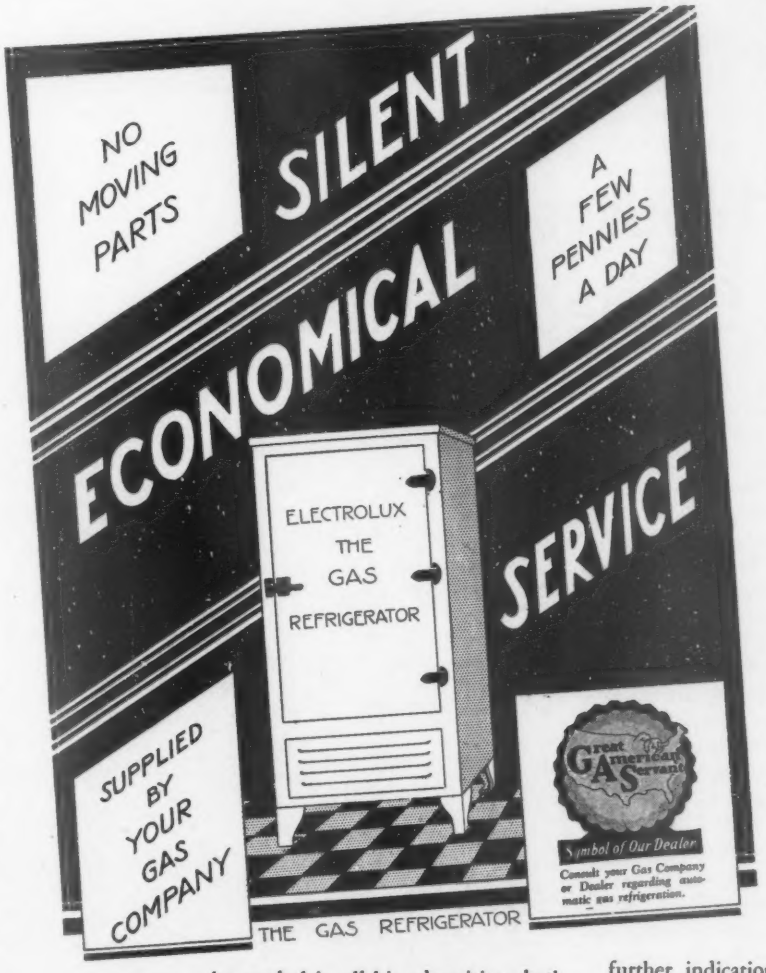
These efforts of the company lie in several directions. It has endeavored ever since its participation in the dealer-cooperation movement in July, 1929, to do its full share in aiding and supervising the plumber in merchandising modern gas appliances.

A feature of this cooperation has been the introduction, about four months ago, into its advertising matter of the Great American Servant sign. In this sign appears an outline of the United States of America with the words: *Great American Servant.*

This cooperative advertising plan is participated in by three parties—the gas appliance manufacturer, the dealer and the gas company. Through this coordination better results, it is believed, are likely to be obtained in the merchandising of gas appliances.

In this campaign the manufacturer of the American Gas Association approved appliances cooperates by using the symbol in all his advertising, both magazine and direct mail.

In the case of the dealer the plumbing and heating contractor uses the symbol with the words, "Plumbing and Heating" as a footline on his windows, trucks and newspaper and direct-mail advertising.



The Brooklyn Union Gas Co. uses the symbol in all its advertising whether it be magazine, newspaper or direct mail. Below the sign appears the footline, "Symbol of Our Dealer." Also further proof of the company's sincere efforts is given in the following words, which usually appear under the sign: "Consult your gas company or dealer regarding modern gas appliances."

By using this symbol the gas company tells the public that the dealer is an authorized sales representative of the company and is empowered to sell approved gas appliances with the backing of the gas company's fine record for service. Thus the dealer is recognized as a special representative or sales ally of the gas company, which not only approves the appliances the dealer sells but also guarantees their proper installation.

The gas company is giving further indication of the cooperation in the sales course which it is conducting for its dealers. The purpose of the course which consists of twenty lectures, is to help the dealer represent intelligently the gas company in his work of merchandising gas appliances.

(Continued on page 182)

North Chicago Residence Which Will Be One of First Dwellings to be Cooled by Gas

Committee on Industrial Gas Research, American Gas Association, Announces Plan for Advanced Research in this New Use for Gas

Three Houses To Be Cooled With Gas

By EUGENE D. MILENER
Industrial Research Representative,
American Gas Association

FOLLOWING over two years' preliminary research and development work in the application of gas to house cooling and summer air conditioning, the work has advanced to the point where three practical installations will be made and operated under practical test conditions through the coming season. This announcement, which was made by F. J. Rutledge, chairman of the Committee on Industrial Gas Research of the American Gas Association, indicates that the most important milestones in recent years in the development of gas utilization have been reached.

The three houses will be located in different sections of the country so as to get a good cross section of the air conditions. One will be on the Atlantic Seaboard, one will be in the Middle West and one will be in the extreme South. In this way three separate and distinct climatic conditions will be encountered and the maximum of knowledge will be gained from operation during the first season. The houses in the East and Middle West have been selected and the house in the South will be finally selected within the next week or so. The Eastern house is located in Westchester County, N. Y. and is typical of the well-developed home life in that prosperous community.

The Middle Western house is situated in North Chicago. It is a new brick dwelling and is located in a place directly exposed to the intense heat of the sun. Both houses are now heated with gas and with the addition of gas-operated cooling and dehumidifying, they will become the first houses to be completely air-conditioned with gas the year round.

Pelham, Westchester County, New York, Home also Soon to be Gas-Cooled

The system that has been developed for using gas for this purpose is known as the Silica Gel gas air conditioning process. For over two years the Research Committee has actively cooperated in applying Silica Gel to summer air conditioning. Very encouraging results have been secured and last summer a large bank building was successfully air conditioned with gas. The principles developed during these last two years will be used, with modifications and improvements in conditioning the three houses as part of the American Gas Association research.

The atmosphere in which we breathe and live contains varying amounts of moisture, the quantity of which is expressed in terms of relative humidity at any given temperatures. The ideal conditioned air for comfort purposes, therefore, should have a sufficiently low relative humidity to evaporate the moisture from our bodies as quickly as it is produced, without too great a difference in temperature between the body and such air; otherwise, the heat capacity of the air is so much greater than our own heat output, that we become chilled.

Silica Gel dehumidified air is cooled to a temperature sufficiently low to remove heat developed within a building without producing the sensation of chilling. Thus, this air flow is in proper condition and of sufficient volume to take up the moisture and heat given off by the people, lights, equipment and operations in the space to be conditioned, and still maintain a proper temperature for comfort. This flow of air is regulated to provide the best ventilation possible without drafts—important, since we have all experienced the uncomfortable down drafts of cold air from the ordinary power-operated cooling system.

Many of us expose ourselves during the summer months in refrigerated theaters and stores to temperatures considerably below the outside temperatures, and then wonder what causes the colds, headaches and general sluggishness upon returning to the street.

Humidity is moisture, and it is atmospheric moisture which we know to be our summer burden of discomfort. By reducing this moisture to any desired degree—and also eliminating impurities and odors—without too great a temperature differential, research has demonstrated that gas operated Silica Gel air conditioning can meet these conditions.

The Research Committee believes that there is no more important new use for gas than that of building cooling and summer air conditioning. While the exact load characteristics of this class of business are not definitely known at this time, it is known that every foot of gas sold by this means will definitely counteract the growing winter peak load caused by residential, commercial and industrial building heating.

These installations are the consummation of over two years' preliminary work which the Research Committee has carried on investigating all the fundamentals of house cooling, using both power and heat as the source of energy. This investigation has included a study of the load gas companies can reasonably expect from house cooling; a complete survey of past work that has been done by various agencies and the status of present work by these agencies; a survey of customer acceptance of building cooling as practiced at present in commercial buildings; a survey of the limitations of power systems; and an analysis of the possibilities of using gas heat as the source of energy either with absorption or other refrigerating systems, or by the direct use of solid adsorbant materials which depend upon the use of heat for their operation.

The Research Committee has deemed it to be its function to find out, on behalf of the gas industry, if there was any way in which gas heat energy could be made to enter the house cooling and air conditioning picture. Two years ago, the Committee definitely determined that this was possible. Further than that, it determined that there were no such limitations to the use of gas heat energy for house cooling as there are when power energy is used for this purpose. Power energy is adaptable to cooling and dehumidifying buildings only by means of refrigeration, but unlike power energy, gas heat energy is also adaptable to heating adsorption materials directly and thereby utilizing a cooling and dehumidifying cycle that has not been used up to the present time.

Air conditioning consists of preparing the air of a factory, store, theater, dwelling or other building so that the occupants will be comfortable. In addition, in parts of factories, air is conditioned for certain industrial processes depending upon its effect on the product being manufactured. As outside weather conditions affect the state of the air in buildings, it is chiefly to counteract outside weather that air conditioning is done. Complete air conditioning consists of cleaning and circulating; heating or cooling as necessary and humidifying or dehumidifying as needed. Air is conditioned in the winter time by cleaning, circulating, heating and humidifying or moistening. Air is conditioned in the summer by cleaning, circulating, cooling and dehumidifying or drying.

Heating and humidifying as well as cooling and dehumidifying require energy. Energy for heating and humidifying is being furnished by gas heat in all sections of the country at an increasing rate. Furnaces using gas are now manufactured that clean, circulate, heat and humidify the air and thus render a complete winter air conditioning service, that is, they completely condition the air when the temperature and humidity is below the zone of human comfort. The list of appliances approved by the American Gas Association Laboratory shows that nine manufacturing company members of the American Gas Association now offer gas furnaces approved by the American Gas Association Testing Laboratory that completely condition the air in winter time or offer the necessary standard accessories to be added to their furnaces to give complete winter air conditioning.

Research has brought summer air conditioning with gas to the practical stage. It is expected that before the summer of 1932, arrangements will have been made for manufacturing and placing on the market equip-

(Continued on page 182)

Merit Wins Two Harvard Awards For Gas Advertisements

ADVERTISING copy produced by a gas company in behalf of its product and for the manufacturer of the Electrolux gas refrigerator won two of the Harvard Advertising Awards announced the latter part of February at a dinner of the Faculty Club, Harvard Graduate School of Business Administration.

To the Northern States Power Company, St. Paul, Minn., went the distinction of winning a $1,000 Harvard award for the outstanding local campaign for a specific product or merchandise.

"As Silently as Nature Makes Ice" was the line which won for Batten, Barton, Durstine & Osborne, New York advertising agency of Electrolux Refrigerator Sales, Inc., a $1,000 award for effective headline use.

T. H. Kettle, advertising manager of the Northern States Power Company, under direction of the Byllesby Engineering and Management Corp., is the man responsible for the capture of the St. Paul campaign award.

This is the second consecutive award to the Northern States company. Last year it won the same award on a campaign for electricity in Minneapolis for which Mr. Kettle also was responsible.

People of St. Paul, turning through their newspapers last year found advertisements of this sort:

"What a pleasant way to cook a meal."

"The gas ironing machine saves you time and strength."

This copy occupied dominating space—almost six full columns.

Half-page space following told of the man who "paid $50 for a place to put his garbage can," of "new gardens for old back yards," of "the chef that cooks meals for a penny," of "guaranteed weather, 7 cents an hour."

As one evidence of interest stimulated by the advertising, it is stated that people began to call up and ask about a "flaming six" heater, despite the fact that there is no heater by that name. This was probably due to the company's advertising of the "flaming six" helpful services of the gas flame—heating, gas cooking, incineration, gas ironing, water heating, and radiant heat in fire places. A large advertisement was devoted to each of these.

As other evidence of results of the campaign the company says:

"All the evidence that we have been able to collect points to a much more broad general interest in gas than has ever been displayed in St. Paul before. The sales manager of the St. Paul office is authority for the statement that this particular series of advertisements were responsible for more sales of the articles featured than some of our direct merchandising campaigns featuring the same articles.

"Our director of gas sales states with much emphasis that his salesmen now find it much easier to sell the appliances than ever before in the history of the company."

H ...TISING AWARDS

...d W. Bok

...Y THE

...USINESS ADMINISTRATION

...RARY FOUNDATION, HARVARD UNIVERSITY

A Series of Annual Awards Offered to Encourage Merit and Stimulate Improvement in Advertising

Certificate for 1930 of the Award to

Northern States Power Company

MANAGEMENT OF BYLLESBY ENGINEERING AND MANAGEMENT CORPORATION

For the Local Advertising Campaign of Northern States Power Company in St. Paul, Minnesota,—deemed by the Jury of Award conspicuous for the excellence of its planning and execution

In Testimony Whereof, the Harvard Graduate School of Business Administration issues this Certificate of Award, signed by its Dean and approved by members of the Jury of Award who served for the year 1930

Dean

Approved by

MELVIN T. COPELAND	BENNETT CHAPPLE	G. R. SCHAEFFER
JOHN BIANCHI	WILLIAM A. HART	G. LYNN SUMNER
NEIL H. BORDEN	J. C. McQUISTON	ROLAND S. VAILE
WALTHER BUCHEN	HENRY B. QUINAN	PAUL B. WEST

Jury of Award

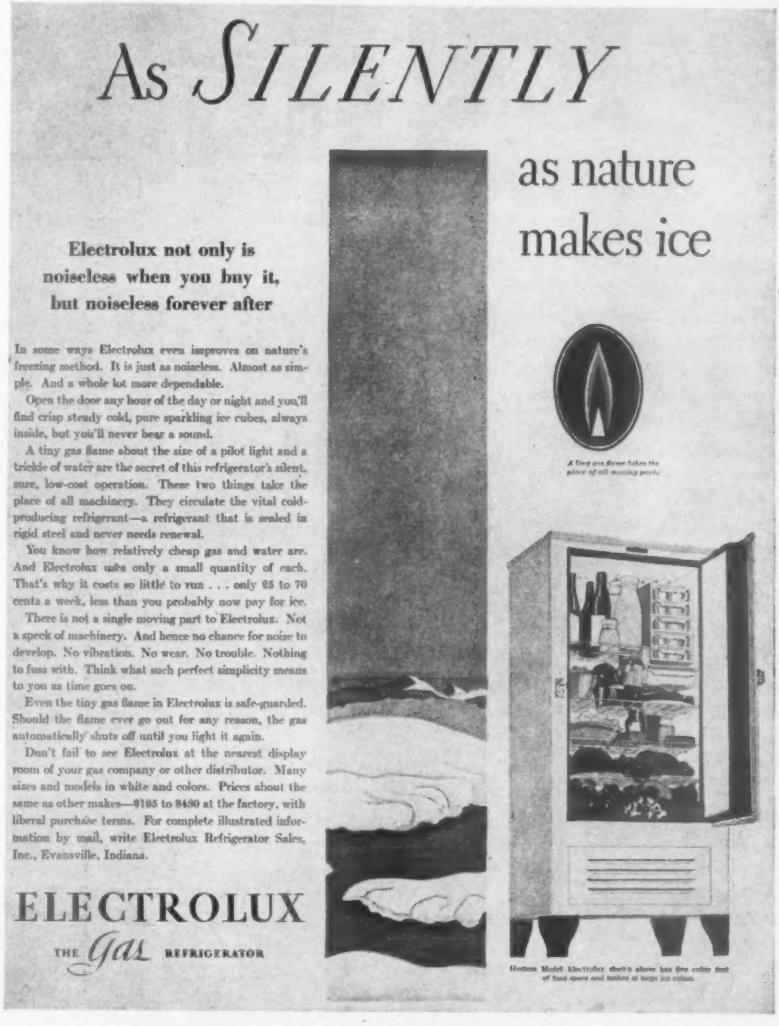
T. H. Kettle, advertising manager, and Harvard Award Certificate he captured for Northern States Power Company

A prize-winner

The three newspapers of St. Paul, the *Dispatch* and *Pioneer-Press* and the *Daily News,* formed the major medium used because the very people who are prospects for the service offered are readers of the newspapers. Similar but briefer copy was shown on scattered billboards and posters, while special window and lobby displays were used, as well as direct-mail copy.

A $12,000 appropriation was used in the three newspapers, the combined rates amounting to $6 an inch.

"The basis of the appropriation," it is stated, was simply this: "That the people of St. Paul must be compelled to realize what they were missing by not using gas service supplied by the company; to do this in such an outstanding way that, no matter how well made up the paper is, each one of these advertisements would literally jump from the page and greet the eye. Consequently each advertisement was designed to dominate the situation."


As SILENTLY as nature makes ice
Electrolux not only is noiseless when you buy it, but noiseless forever after
In some ways Electrolux even improves on nature's freezing method. It is just as noiseless. Almost as simple. And a whole lot more dependable.
Open the door any hour of the day or night and you'll find crisp steady cold, pure sparkling ice cubes, always inside, but you'll never hear a sound.
A tiny gas flame about the size of a pilot light and a trickle of water are the secret of this refrigerator's silent, sure, low-cost operation. These two things take the place of all machinery. They circulate the vital cold-producing refrigerant—a refrigerant that is sealed in rigid steel and never needs renewal.
You know how relatively cheap gas and water are. And Electrolux uses only a small quantity of each. That's why it costs so little to run . . . only 65 to 70 cents a week, less than you probably now pay for ice.
There is not a single moving part to Electrolux. Not a speck of machinery. And hence no chance for noise to develop. No vibration. No wear. No trouble. Nothing to fuss with. Think what such perfect simplicity means to you as time goes on.
Even the tiny gas flame in Electrolux is safe-guarded. Should the flame ever go out for any reason, the gas automatically shuts off until you light it again.
Don't fail to see Electrolux at the nearest display room of your gas company or other distributor. Many sizes and models in white and colors. Prices about the same as other makes—$195 to $430 at the factory, with liberal purchase terms. For complete illustrated information by mail, write Electrolux Refrigerator Sales, Inc., Evansville, Indiana.
ELECTROLUX
THE Gas REFRIGERATOR

This headliner won the Harvard award for Electrolux

The Northern States Power Company decided that if the people of St. Paul ever were going to be convinced of the economy and efficiency of the use of gas for fuel that the proper way to do it was through advertising.

The phrase—*As Silently as Nature Makes Ice*—appeared in the *Saturday Evening Post* and *Good Housekeeping* as part of the campaign promoting the sales of its gas refrigerator by Electrolux Refrigerator Sales, Inc., of which William Reynolds is advertising manager.

The campaign was based on the belief that the general public has already been sold on the desirability of automatic refrigeration and that the objective should be to sell Electrolux definitely against the field.

Investigation determined that silence of operation and economy are the two points most sought and the winning line was written in emphasis of the former.

The second point was stressed by drawing analogies with inexpensive objects. A narrow color panel down the center of each piece of copy featured carfare, matches, postage stamps, and the daily newspaper to tell the Electrolux economy story. The headlines provided the hook-up.

Electrolux made a large increase in sales.

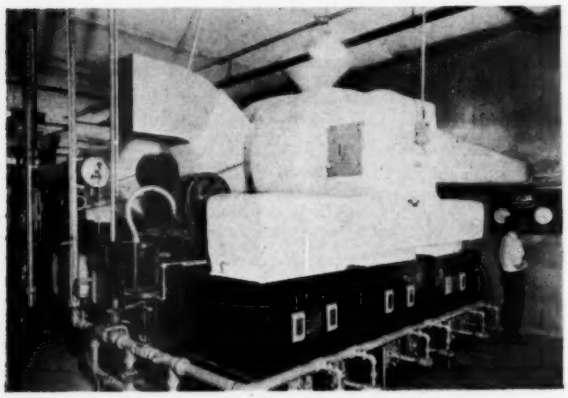
No Decrease in Expenditures

"IT is probably some evidence of the opinion of our management as to what is likely to happen in our own line of business, that we are proposing to go ahead on about the same basis of expenditure in 1931 as in 1930," said Samuel Insull, chairman of the Public Service Company of Northern Illinois, at the annual stockholders' meeting February 24. Expenditures made for the improvement of facilities and to take care of the development of the company's business must be made some time in advance, according to Mr. Insull.

Authorization was voted by the stockholders to issue 200,000 additional shares of no par common stock in all respects on a parity with the present common stock of the company. Such stock is to be issued from time to time as seen fit by the board of directors. The present board of directors was unanmously re-elected.

Records of the company's operations in 1930 showed a savings to customers of $928,000 because of reduced rates instituted last August. It was anticipated that the total savings over twelve months would amount to approximately $1,750,000.

In reviewing the company's business of 1930 it was shown to be the best year in its history. Gross business amounted to $35,405,930 in 1930, or upwards of six per cent more than the preceding year. After paying out $4,754,670 in dividends, which was in excess of the dividends paid out in 1929, $2,809,376 was carried to surplus, which is about $227,000 more than the amount carried in 1929.



One section of six gas-fired heaters for base coat oven. Note automatic temperature control and flues for heat and fresh-air circulation

Automatic Gas Ovens Speed Production

By J. B. NEALEY
American Gas Association

JUST as the automotive industry expanded by producing progressively lower and lower priced cars so will the mechanical refrigerating industry receive its impetus through the manufacture of units within the reach of the middle and lower classes. One of the first to recognize and act upon this principle is the Majestic Household Utilities Company, Chicago, Ill., which has just erected a most modern plant equipped with the latest machinery for the mass production of a mechanical refrigerator to sell below the prevailing market.

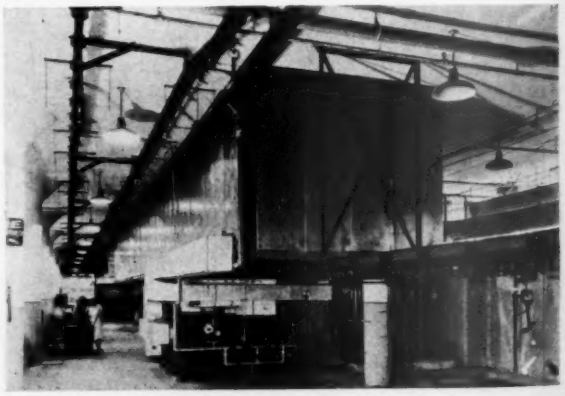
The layouts of the machines, tools, and other units used in the making of this refrigerator are the last word in progressive, straight line operations. The setup for cleaning and painting the sheet steel stampings going into the construction of the "box" is unique in that the parts pass through the several operations, including the gas-fired baking ovens, continuously and without interruption.

These parts come out of the stamping department suspended from two monorail chain conveyors that are parallel and about 5 ft. apart. They first pass through the cleaning layout consisting of a cleaning solution and rinse, both sprayed on with pumps and nozzles, an etching process in which the etching solution is also sprayed on and gives to the sheets a finish similar to that produced by sanding, and then a final rinse. The pumps, nozzles and tanks are all located in a sheet steel housing 15 ft. wide and 7 ft. high which is built in the shape of a squared letter "S," the two short sides being 80 ft. long and the middle about 200 ft. in length.

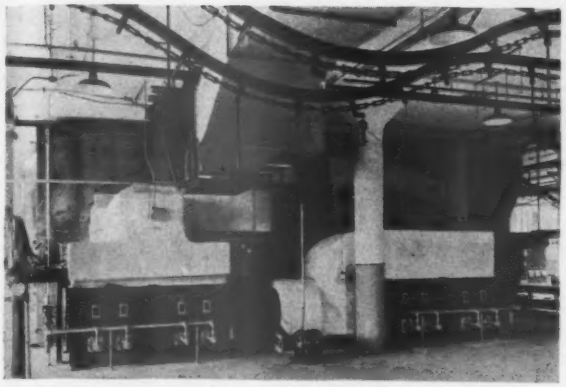
The drying oven is next in line and this is constructed of sheet steel, suitably insulated, and about 100 ft. in length. It sets on legs and a separate air heater, fired with gas, is located beneath. The monorail conveyor carries the parts through this oven and then on through the other ovens. These parts receive three coats of paint and each is baked on in an oven after application. The first is received when the conveyors automatically dip down and drag the parts through a tank of paint, while the others are applied by operators with sprayers, as the parts pass through hooded booths.

As all of the many baking ovens in this layout are heated with the same kind of unit as is the dryer, or multiples of same, it might be well to describe this gas-fired heater at this point. It consists of a sheet steel box, well insulated, from the top of which is suspended a series of sheet steel heat exchanges. Each of these is made of two sheets of steel, placed close together and enclosed on the top, bottom and two ends to form an air tight box. These are hung close together and extend as a pack from the top of the heater to about two-thirds of the way to the bottom, the space below serving as a combustion chamber.

In one end of this heater are located two gas burners, close to the bottom and firing into the combustion chamber, the hot products of combustion rising between the heat interchangers. Most of the heat passes through the steel sheets and is imparted to the air being drawn through the heat interchangers. The heated air is blown into long ducts within the oven and then through a series of ports in the ducts, directly into the oven itself. In this manner complete distribution and uniformity in heat application are attained.



Dryoff oven. Note conveyors and gas-fired air-heater with flues for hot-air circulation through oven



Gas-fired air-heater units at west end of first coat oven on first floor of refrigerator plant. Note conveyors overhead, flues and automatic control at lower left

There are return ducts through which a part of the waste heat from the oven is drawn out and forced back into the heater for reheating and recirculation. However, the air from the oven must be mixed with fresh air in order to obtain the proper baking atmosphere within the oven. The ratio between fresh and used air is determined by the nature of the paint or japan and ranges within wide limits. Naturally the lower the percentage of fresh air required the less is the consumption of fuel.

The pressure of the gas in the gas supply main is increased in a motor driven blower and entrains part of its air for combustion as it passes through the burners. Secondary air for combustion is admitted through the grid, around the burners and regulated with shutters. A valve in the supply line is affixed to a pin and diaphragm and is kept in the open position by the gas pressure, which is piped directly from the line to the under side of the diaphragm. If, for any reason, the blower stops and the pressure fails, the diaphragm sinks, the valve is closed and the gas flow stopped. There is a by-pass around this valve which allows enough gas to pass to keep the burners lighted.

The temperature of the oven is maintained by an automatic temperature control, operating another on and off valve, close to the first and within the by-pass. With the pyrometer set for a certain temperature this valve opens and closes as the heat rises or falls above or below this point, always maintaining a fairly straight line on the recorder which is a part of the control equipment. The valve is opened with a magnet operating against a spring.

As before stated the two conveyors with their loads, descend in their travel to dip the parts in a tank holding the paint for the base coat, make a complete turn and travel back parallel with the base coat oven. This oven, like the others, is of sheet steel well insulated. In width, however, it is much narrower and in height extends from floor to ceiling. With this design the oven becomes a double decker, one conveyor and track descending until it is directly below the other, with sufficient room between for the parts to be baked. The two conveyors enter the oven, in this position, about 30 ft. from one end and make several passes through the oven before emerging.

It requires six heaters to supply the heat for this oven and they are located in two banks of three each. When the conveyors come out of the oven they rise at an angle, through the ceiling to the floor above. Partly assembled refrigerator boxes are also lifted to the second floor on elevators. Here are located four parallel ovens, each just high enough to accommodate one line of work. The charging ends of these ovens, and considerable space around them, is enclosed in a room with glass sides, and which is air-tight to prevent the infiltration of dirty air. Filtered air is supplied with fans and a slight back pressure maintained.

The two overhead monorail conveyors pass through the two outside ovens while slat type conveyors serve the inside ovens and carry the boxes. All of these conveyors, however, pass through spray booths, lined up in front of the ovens, where the first white coat is applied. There are two sources of heat for these ovens, the first being four separate air heaters, located on the floor below and the second, waste heat from the base coat oven.

The work travels through these ovens and out at the other ends directly into another room and other sets of spray booths where the second white coat is applied. From the spray booths they pass directly into another battery of ovens, but this battery consists of three only, one of them being double decked to receive the two chain conveyors as was the base coat oven. This latter oven is much shorter than the two refrigerator box ovens, for the conveyors make several passes through it from front to rear.

When the chain conveyors emerge from the final bake they rise to the ceiling, cross the room and return close to the charging end of the ovens where they feed onto two assembly lines running parallel with the refrigerator box ovens. Here the refrigerator door assemblies are completed, on roller conveyors, and at the end make a right angle turn down the final assembly lines. The slat type conveyors from the refrigerator box ovens also make a right angle turn here, become roller conveyors and become part of the final assembly line. Several other roller conveyors, between the four described, complete the final assembly installation. Here the doors are fitted on, the refrigerating unit is installed and all the last parts put on.

Although a full 24-hour test has previously been given the refrigerating unit final half hour test is here applied, the wiring and connections being suspended from an overhead wire so that they travel along with the refrigerators as it is pushed ahead. A feature of this assembly is the overhead monorail chain conveyor which brings the packing cases directly onto the assembly lines and drops them over the completed refrigerators while operators finish packing them ready for shipment.

New Film

THE Sprague Meter Company has recently brought out two 400-foot reels of 16 mm., non-inflammable, films depicting "The Manufacture of Sprague Cast-Iron Gas Meters."

A Practical Training For Better Public Contacts

Gordon M. Peterson

By GORDON M. PETERSON
Public Service Electric and Gas Company

AMONG the many worth-while activities designed to create and maintain more friendly relations between utility companies and their customers, the American Gas Association's Course in Employee-Customer Relations has recently assumed a prominent position. The mere fact that almost 5,000 gas company employees have enrolled for the course during the few months it has been available, is enough to attract at least the passing attention of those who have any interest, either practical or academic, in the broad field of public relations.

Even more impressive than the large enrollment, however, is the enthusiasm which has attended the study and discussion of the first few lessons of the course that have already been completed. This was brought out recently at a meeting of the Association's Committee on Education of Gas Company Employees, when representatives of companies responsible for approximately half of the total enrollment were unanimous in commending the course on the strength of its acceptance by their organizations.

The course, therefore, seems to merit careful consideration by those who are not already familiar with it, as a practical medium for increasing customer good-will.

The important part played by employees in shaping customer relations is often emphasized. It has been conclusively shown that in the aggregate personal contacts between customers and employees constitute the most influential factor in forming customer attitude toward the company which those employees represent. The Association's Course in Employee-Customer Relations, like all other methods of public contact training, is an acknowledgment of this situation. Its purpose is to build up in contact employees a higher level of skill in handling customer contacts. The degree to which it succeeds in this purpose will measure its value to the industry. The splendid response already accorded to the course, by both management and employees, augurs well for its ultimate success. This response, in turn, must be founded on the practical values which the course offers, and we may well consider briefly what these values are.

The experience of Public Service Electric and Gas Company may be useful by way of illustration. This company's relations with customers are probably at least as good as the average. Furthermore, the general educational and training activities in operation within the company have for some time past included much material of value in developing better contact representatives. Nevertheless, we in Public Service felt, when the Course in Employee-Customer Relations was announced, that it could be used to advantage, in our case as a valuable supplement to what was already being done along similar lines.

It seemed likely that the course would reach some individuals who had not participated in other educational and training activities, and would at least present the subject from a refreshingly different, and at the same time authoritative, point of view to all who might study it. Consequently the course was brought to the attention of employees, and made available to them under the company's plan of liberal assistance in advancing the tuition fee and refunding a large part of it upon satisfactory completion of the course. More than 700 commercial department employees enrolled for the course. Thirty-four conference groups were formed, with at least one in each of our 27 commercial offices, and all are holding meetings in which four hours or more are devoted to a discussion of each unit or lesson.

Throughout these many groups there is a recognition of the sound values of the course. The manager of one office outlines its advantages as follows:

"1. It has inspired employees with greater confidence, resulting in their conducting themselves more capably during customer contacts.

"2. It has brought about a realization that success, whether affecting collections, sales or adjustments, is in direct proportion to the degree of respect they are able to command.

"3. It has greatly increased the employees' knowledge of the general policies and activities of the company and it has inspired them with a real desire to obtain any knowledge which would aid them to increase their usefulness to the company.

"4. It has made them customer conscious, and the public, in general, now appears to them in a different light. This, of course, has made them better able to see the customer's viewpoint, and better able to understand their problems.

"5. Improvement in the tone quality of the voice has proved a great factor in more successful customer contacts.

One of three groups studying the course in Employee-Customer Relations at the Orange, N. J., office of the Public Service Electric & Gas Co.

"6. For most of the members of the class, it has opened up a new field of thought, or rather a new field of study, human nature. During the past few months, through a systematic study of this interesting subject, they have greatly improved their ability to judge the different types of customers contacted.

"7. It has made them analyze the different contacts which they make during the day, with the idea of determining whether they have been entirely successful, and whether the knowledge, which has been gained so far in the course, has been adequately applied.

"8. It has greatly increased the versatility of these men, and they are now, in most cases, exhausting every means and sparing no effort to bring about a satisfactory settlement of any problem which might arise."

This opinion is based upon the manager's careful observation of, and conversation with, those members of his organization who are taking the course. It is fairly representative of the opinions held by the local management in other offices. In it we can trace advantages not only to the company, but also to the students, in the way of personal development.

The students have demonstrated their interest in this program of study by the manner in which they enter into discussion at the group meetings. Discussion is not confined to the formal conference periods, however, for we find that the problems raised are taken from the meetings and discussed informally whenever opportunity offers. Also in the high attendance record, even though attendance at the evening meetings is entirely voluntary, there is evidence that the students feel they are deriving concrete value from this course.

The principal values of the course, as they have appeared to us, may be summarized as follows:

1. A better knowledge among employees of the economics of the gas industry.
2. A better understanding of company policies and procedures and especially of relationships between various departments and functions.
3. A greater interest and pride in individual performance.
4. A more cooperative attitude, as they realize the interdependence of their jobs.
5. A better understanding of the customer's point of view.
6. A more sincere desire to serve the customer properly, and so represent the company more adequately.
7. A better appreciation of the importance of their own jobs, and of the ideals and the future of the industry and the company.

All these work toward more effective handling of customer contacts. It may be observed that the same results are to be secured through other educational programs. This is true, and it is the flexibility of the Course in Employee-Customer Relations that constitutes one of its major advantages. As an authoritative training medium, it may be used to fit in with almost any type of educational program which involves customer contacts. It has proved effective in arousing enthusiasm in the study of the subject, and in stimulating constructive thinking and a desire to apply the new knowledge on the job. When this has been accomplished, and a follow-up is established, the results are bound to appear in better customer relations.

U. S. Bureau of Mines to Have Station

PRESIDENT HOOVER has approved an act passed at the last session of Congress, authorizing the erection, on the campus of the University of Maryland, at College Park, Maryland, of an experiment station for the United States Bureau of Mines, to cost $350,000.

It is understood that twenty acres on the University of Maryland campus will be designated for this experiment station.

Economics of Increasing Capacity of Gas Pipe Lines

By L. C. LICHTY and R. L. ANTHONY*

IT occasionally happens that the capacity of an existing gas pipe line must be increased. Two possibilities at once appear: (a) the pressure of the gas entering the line may be increased and (b) a second pipe may be run in parallel with a certain portion of the discharge end of the line, thus decreasing its total resistance to the flow of gas.

In this analysis it is assumed that the initial pressure is already at the maximum desirable, which leaves only the second method available for increasing the capacity of the pipe line.

T. R. Weymouth (Trans. A.S.M.E., Vol. 34) gives the following equation for the capacity of a pipe line:

$$Q_s = 15385 \left[\frac{(P_1^2 - P_2^2)\, d^{\frac{16}{3}}}{GTL} \right]^{\frac{1}{2}} \quad \ldots\ldots (1)$$

in which

Q_s = cu.ft. of gas per 24 hrs., under pressure of 14.65 lbs. per sq.in. abs. and temperature of 60 deg. F.
P_1 = entering pressure in lb. per sq.in. abs.
P_2 = discharge pressure in lb. per sq.in. abs.
d = inside diameter of pipe in inches.
G = specific gravity of gas, air being taken as 1.
T = temperature of gas, deg. F. abs.
L = length of line in miles.

This equation applies directly to a line made up of a single pipe of uniform diameter.

Complex lines are lines in which the diameter is not uniform, two or more pipes are connected in parallel or any combination which is not a single pipe of one size only. To find the capacity of a complex line it is necessary to find the length and diameter of an equivalent simple line, after which Weymouth's Equation may be used.

An equivalent line may be defined as any line (usually simple in character) which will have the same capacity under the same flow conditions as the given line, its length and diameter being called the equivalent length and equivalent diameter.

From Weymouth's Equation it is apparent that, if the capacity and flow conditions remain constant (as would be the case in finding the equivalent line for a given line),

$$\left(\frac{d^{\frac{16}{3}}}{L} \right)^{\frac{1}{2}} = \text{a constant}$$

for any equivalent line. Denoting the length and diameter of the actual line by d_A and L_A, and the same dimensions of the equivalent line by d_E and L_E, it follows that to produce the same flow conditions

$$d_E = \frac{L_E}{L_A} d_A^{\frac{16}{3}} \quad \ldots\ldots (2)$$

and

$$L_E = L_A \left(\frac{d_E}{d_A} \right)^{\frac{16}{3}} \quad \ldots\ldots (3)$$

L_E in equation 2 and d_E in equation 3 may be any suitable values, but are usually chosen to be the same as L and d for some portion of the line.

One more relation is necessary before attacking the general case of any complex line. If any number of lines are connected in parallel, having the same length, the parallel system is equivalent to a single line of the same length of which the diameter is

$$d_{EP} = \left(d_1^{\frac{8}{3}} + d_2^{\frac{8}{3}} + \ldots\ldots d_n^{\frac{8}{3}} \right)^{\frac{3}{8}} \quad \ldots\ldots (4)$$

in which d_1, d_2, etc., are the diameters of the several parallelled lines of the same length. This results from the fact that in such a system the total flow might be found by separately calculating the flow for each branch and then adding all together. However, since the branches have the same initial and final pressure, all values except d in Weymouth's Equation are constant and the total flow is proportional to the sum of the $\frac{8}{3}$ powers of the various diameters. The value d_{EP} in equation 4 is then merely a number which when raised to the $\frac{8}{3}$ power is equal to the summation of the various diameters raised to the $\frac{8}{3}$ power.

In calculating the capacity of any pipe line the above four equations are all that are necessary. The steps are:

1. For each section having pipes in parallel find diameters if all branches are made the same length (Equation 2).
2. Find total equivalent diameter for each parallel section (Equation 4).
3. Each loop section now having been reduced to a single pipe in series with other single pipes, find equivalent lengths of sections in pipe of some one diameter (Equation 3).
4. Add these lengths and apply Equation 1.

The development to this point will permit us to find the capacity of any line. However, for the specific problem at hand we have some sort of a line in existence and wish to increase its capacity.

Taking the possibility of paralleling the line by a new line for some distance back from the discharge end, the present line no matter how complex can be reduced to an equivalent single line by the methods already presented. Our proposed situation then will be as represented by the diagram, Fig. 1, in which L_2 is unknown and d_2

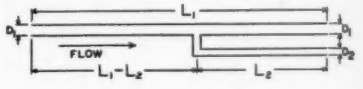


FIGURE 1. COMPLEX PIPE LINE

may be varied. Two methods of solution are possible if a value is assumed for d_2.

The steps in the first method are as follows:

1. Find the capacity Q_1 of the present line from Equation 1. Let Q_2 be the required increased capacity.
2. Find the diameter d_3 of a single line L_1 miles long which has the capacity Q_2. From Equation 1 it is seen that this is

$$d_3 = d_1 \left(\frac{Q_2}{Q_1} \right)^{\frac{3}{8}} \quad \ldots\ldots (5)$$

3. Find the equivalent diameter d_4 of the proposed loop system, d_1 and

*L. C. Lichty is associate professor of mechanical engineering in the Sheffield Scientific School of Yale University, and is the author of "Natural Gas" (John Wiley and Sons, Inc., New York, 1924). R. L. Anthony is instructor in mechanical engineering in the same school.

d_2 in diameter and L_2 in length, by means of Equation 4.

We now have (a) a single line $L_1 - L_2$ miles long, d_1 inches in diameter and (b) another single line L_2 miles long, d_4 inches in diameter. This is a series combination which will give the required flow Q_2.

4. Find the equivalent length L_3 of line (a) above if the diameter is changed to d_3. This is

$$L_3 = (L_1 - L_2)\left(\frac{d_3}{d_1}\right)^{1.6} \quad \ldots\ (6)$$

and will be in terms of L_2.

5. Find the equivalent length L_4 of line (b) above if the diameter is changed to d_3. This is

$$L_4 = L_2\left(\frac{d_3}{d_4}\right)^{1.6} \quad \ldots\ (7)$$

and is also in terms of L_2.

6. The sum of L_3 and L_4 must equal L_1, since the common diameter d_3 was taken in Step 2 as that of a line L_1 miles long which would have the required capacity. Adding equations 6 and 7 we have

$$L_1 = (L_1 - L_2)\left(\frac{d_3}{d_1}\right)^{1.6} + L_2\left(\frac{d_3}{d_4}\right)^{1.6} \quad (8)$$

in which the only unknown is the required length L_2 which can thus be found.

The length L_2 can be found in another way. Equation 1 may be solved for L_{ES}, the equivalent length of the system in terms of pipe of d_1 inches diameter to give the required Q_2.

$$L_{ES} = \frac{236{,}700{,}000\,(P_1^2 - P_2^2)\,d_1^{1.6}}{GTQ^2} \quad \ldots\ (9)$$

Also, the equivalent length L_{EL} of the loop is

$$L_{EL} = \frac{L_2\, d_1^{1.6}}{\left(d_1^{\frac{5}{3}} + d_2^{\frac{5}{3}}\right)^{\frac{3}{5}}} \quad \ldots\ (10)$$

from equations 3 and 4.

Now, since both of these lengths are in terms of d_1 it follows as in Step 6 preceding that

$$L_{ES} = L_1 - L_2 + L_{EL} \quad \ldots\ (11)$$

and, substituting equations 9 and 10 in equation 11 we have a relationship in which L_2 is the only unknown. Solving this for L_2:

$$L_2 = \frac{L_1 - \dfrac{236{,}700{,}000\,(P_1^2 - P_2^2)\,d_1^{1.6}}{GTQ^2}}{1 - \dfrac{d_1^{1.6}}{\left(d_1^{\frac{5}{3}} + d_2^{\frac{5}{3}}\right)^2}} \quad (12)$$

all terms being as previously defined. The solution now becomes merely a determination of L_2 from the above equation 12.

L_2 must be found for several values of d_2, so chosen that the practical range of sizes will be covered. Then, knowing the cost per mile of each size, and probable figures for interest, maintenance and depreciation, the annual cost of each size of pipe may be determined and the most economical selected.

As an example consider the following problem. A single line of 18 inch (outside diameter) pipe 86 miles long now delivers about 63,000,000 cu.ft. of gas per 24 hrs. with $P_1 = 365$ lbs. per sq.in. abs. and $P_2 = 115$ lbs. per sq.in. abs., G is 0.65 and $T = 520$ deg. F. abs. It is desired to increase the capacity of the line to 74,000,000 cu.ft. of gas per 24 hrs. by running a second pipe parallel to the discharge end. Assume interest 66 per cent, depreciation 5 per cent and maintenance 3 per cent. Pipe size and cost according to the following table.

Pipe O.D.	*Pipe I.D.*	*Cost per Mile Installed*
12¾ in.	12.19 in.	$14,200
14 in.	13.40 in.	15,700
16 in.	15.43 in.	18,000
18 in.	17.37 in.	20,800
20 in.	19.37 in.	23,900
22 in.	21.32 in.	27,900

What size of pipe has the lowest annual cost?

Solving by the first method presented, the steps are:

Step 1. Find the actual present capacity by Equation 1. This is 63,220,000 cu.ft. per 24 hrs.

Step 2.

$$d_3 = 17.37\left(\frac{7400}{6322}\right)^{\frac{3}{8}} = 18.43 \text{ in.}$$

Step 3. Assume d_2 as 19.37 inches.

$$d_4 = \left(17.37^{\frac{5}{3}} + 19.37^{\frac{5}{3}}\right)^{\frac{3}{5}} = 23.88 \text{ in.}$$

Step 4.

$$L_3 = (86 - L_2)\left(\frac{18.43}{17.37}\right)^{1.6} = 117.8 - 1.370\,L_2$$

Step 5.

$$L_4 = L_2\left(\frac{18.43}{23.88}\right)^{1.6} = 0.2508\,L_2$$

Step 6.

$$117.8 - 1.370\,L_2 + 0.2508\,L_2 = 86$$
$$L_2 = 28.44 \text{ miles}$$

Checking this value by using equations 4, 3 and 1 we find that Q_2 is 74,000,000 cu.ft. per 24 hrs. as required. This pipe would cost $680,000 installed and its annual cost would be $95,200.

The solution by the second method is a matter of substitution in equation 12. After the two fractions have been found we have (for $d_2 = 19.37$ inches).

$$L_2 = \frac{86 - 62.77}{1 - 0.1831} = 28.47 \text{ miles}$$

which checks reasonably well with the result of the first method.

By following either method for the other assumed values of d_2 we can find the length of parallel pipe which will be required in each case and the annual cost of each size. The following table gives these results.

Pipe O.D.	*Miles Required*	*First Cost*	*Annual Cost*
12¾ in.	48.24	$684,000	$95,800
14 in.	41.79	656,000	91,900
16 in.	34.91	628,000	87,900
18 in.	30.98	645,000	90,300
20 in.	28.44	680,000	95,200
22 in.	26.84	750,000	105,000

The annual costs of the various sizes of pipe are plotted in Figure 2, which shows that for the case presented 16-inch pipe is the most economical.

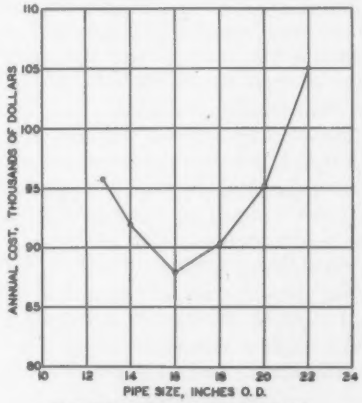
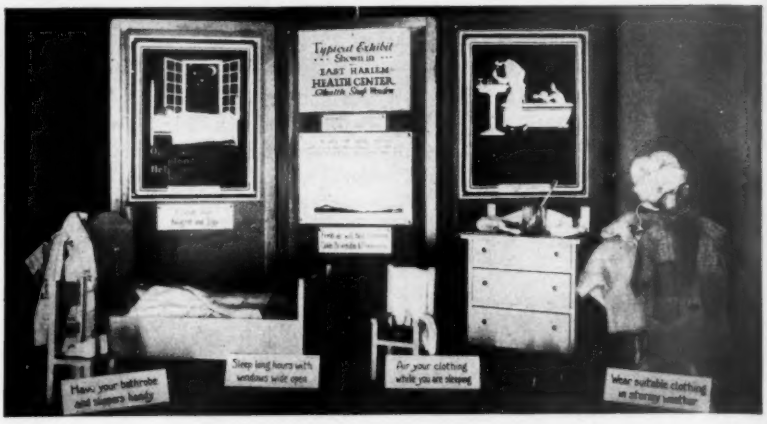


FIGURE 2. ANNUAL COST OF INCREASED CAPACITY

It will be noticed that many parts of the computation remain unchanged for different assumed sizes of pipe d_2, particularly when using Equation 12. For this reason the use of that equation is suggested as involving less labor.

Should it be possible to increase the pressure of the gas entering the line, the cost of so doing may be found by familiar methods which will depend on the circumstances and this cost compared with the minimum as found above.

Gas Company Undertakes Work at Health Center


Typical Exhibit
Shown in
EAST HARLEM
HEALTH CENTER
Health Shop Window
Have your bathrobe and slippers handy
Sleep long hours with windows wide open
Air your clothing while you are sleeping
Wear suitable clothing in stormy weather

An Exhibit at Health Center

AN educational program conducted in cooperation with the East Harlem Health Center of the City of New York is the latest activity of the Home Service Division of the Consolidated Gas Company of New York. This development, which was inaugurated in January, 1931, marks another step in the direct application of home service work to the problems of the domestic gas customer.

Miss Pauline Terwilliger, a graduate of Cornell University, is in charge of this new work, and she has established her headquarters in the Health Center Building in the East Harlem section of the city.

In addition to certain routine duties, Miss Terwilliger will take part in all activities of the Health Center, and will originate and conduct various new undertakings that have a direct bearing on the use of gas in the home as well as on the work of the center.

The first step in the program is a comprehensive survey of actual conditions in the homes of people with whom the Health Center comes in contact. This will be accomplished through the medium of personal visits by Miss Terwilliger. She will report on home conditions, with regard to family nutrition and general health, and will also undertake to instruct the people in the safe, efficient and economical use of gas appliances.

Another phase of this activity includes special lecture demonstrations at regular intervals on subjects of interest to the women in the neighborhood of the Health Center. The recipes to be distributed will be printed in Italian as well as English, and considerable attention will be given to the planning of the family food budget, not only from the viewpoint of nutrition, but also from that of economy.

By JANE WAGNER
Home Service Director Consolidated Gas Company of New York

Miss Terwilliger will cooperate with the customers' service department of the gas company, and will make minor adjustments, reporting through the established channels other cases that need the services of an expert repairman.

When possible, the lists of homes to be visited will be made up with the help of the nursing and health demonstration agents, so that families under their care will be properly taken care of.

Miss Terwilliger will have three reasons for calling at the customer's home: One, as a result of a request from the customer; two, as part of the company's service for checking and adjusting gas appliances; three, as part of the educational program for all purchasers of new appliances. In all cases she will attempt to find out if the family knows about the free services of the Health Center. Where the family's needs are adequately taken care of by a family physician, she will mention the educational facilities of the center.

This entire program of cooperation with the Health Center was developed with the aid and assistance of Miss Selina A. Weigel, director of the Health Shop of the New York Tuberculosis and Health Association.

Temporary Rate Cut Enjoined in Oklahoma

A temporary injunction was granted by the United States District Court of the Western District of Oklahoma at Guthrie, Okla., February 27, to enjoin enforcement of the temporary rate reduction order by the Oklahoma Corporation Commission affecting natural gas rates of the Oklahoma Natural Gas Corporation in 46 cities and towns in Oklahoma, which had been ordered effective February 1.

The injunction was granted conditional upon the making by the Oklahoma Natural of a bond for $400,000 to guarantee refunds to customers of the company should the final rate be lower than rates now in force.

The temporary injunction has the effect of keeping in force the old rates charged by the Oklahoma Natural Gas Corporation until such time as a final decision is reached by the corporation commission or courts as to what constitutes fair rates. The corporation commission is conducting hearings to determine upon a permanent rate. The corporation commission ordered a reduction of 10 cents per 1,000 cu.ft., in gate and distribution rates charged by the Oklahoma Natural applicable to the months of February, March and April, at the end of which time the commission is expected to determine upon a permanent rate.

Business Management as a Human Enterprise*

How Can Management Share its Consumer Responsibilities with Employees

By J. DAVID HOUSER

IN the hands of the consumer lies the destiny of every modern commercial organization. The only possible exception to this generalization occurs during those periods known as sellers' markets. These periods are usually brief, however, and connected with untoward phenomena such as wars or other unusual social or economic states in which consumption is abnormally stimulated. The buyer's market in which the consumer reigns supreme is the mode.

It is obvious, therefore, that the prime and all-inclusive consumer responsibility of the modern commercial organization is to please and satisfy the buyer. The essential definitions of the elements of this responsibility—and therefore of the responsibility as a whole—are the consumer's and not the organization's. Service is "satisfactory" and merchandise is "good" according to specifications in the consumer's mind. These definitions are arbitrary and autocratic—there is no appeal from them—and they are compelling and imperative.

The logic of this appears simple, but is very often not appreciated. A suggestion was once made to the executive of an advertising agency in charge of the account of a large railroad that many passengers felt the prices charged for meals on dining cars were too high. His response was one of irritation. "What basis," he querulously remarked, "has the ordinary passenger for knowing what it costs to prepare food on diners and what is *reasonable?*"

Definitions of Consumer Responsibility

The closer directing executives of organizations come to knowing exactly what the real elements of consumer responsibility are and to administering the organization so that its product and service most adequately meet consumer definitions, the greater will be the organization success. This would seem to be a truism, especially if "success" is interpreted in a broad way and over a long period of organization development.

From a narrower viewpoint, the need for exact knowledge of consumers' standards and satisfactions would appear to be a matter of degree according to the type of organization. The executives of monopolies might conceivably administer their enterprises successfully for considerable periods of time in quite complete ignorance of consumer reaction. In highly competitive situations, however, good intuitions of consumer attitudes are frequently actual survival characteristics governing almost from week to week.

Penalties of Ignoring Consumer Attitudes

However, ignorance of or ignoring of consumer reactions and desires will usually automatically bring its retribution, given a long enough time for resentments to find a focus or method of expression. This is true, in a democracy, even with monopolies, as American economic history amply demonstrates.

In a certain American city a public utility was directed by an executive with an utterly complacent, self-sufficient and autocratic philosophy of management. His were the governing definitions of "good" service to the public and good treatment of employees—and his alone. Public resentment found, for a long time, no more conspicuous method of expression than the making of many complaints; employee resentment was vented through abnormally high turnover. Both phenomena doubtless involved large unnecessary expense, but this was entirely obscured by revenues increasing by leaps and bounds. For this city was growing rapidly and the sheer force of added thousands of population every year hugely increased the demands for the product, without competition, naturally. For all of this management gained large credit, whereas the increases could hardly have been prevented. Unfortunately the philosophy and practices of the chief executive seemed to be earning a clear justification.

Upon the eventual retirement of the chief executive, full of years, honor and complacent satisfaction, there seemed no reason for any change of managerial attitude. And there probably would have been none had not the advocates of municipal ownership in the city become awake to the fine, fertile ground prepared for their activity.

The scene now changes and becomes one of a battlefield with management spending much of its time nursing its wounds, defending its territory and planning offensives. The moral is obvious, but might be sharpened by pointing to the entirely different results which might have come had there been a continuously reported index of consumer attitude to balance against gross income.

However many erstwhile monopolies are fast losing this peculiar status as competitive drives threaten hitherto undisputed controls of service or product fields. Gas and electricity more and more tend to overlap in their applications, electricity invading the field of heat with an appeal which increases in direct ratio to constant rate reductions. Coal and oil threaten gas as they likewise

*One of a series of papers read before members of the Bureau of Personnel Administration in New York, N. Y., Feb. 19.

threaten electricity. Electric Company patronage is everywhere menaced by the promptitude with which large individual customers tend to install their own generating facilities if high rates of the electric company make this preferable. And so on.

As these competitive drives become keener everywhere, knowledge of what the consumer wants and what his reactions are to what he gets is becoming more and more of a genuine survival characteristic. To the executive who hath this knowledge—gained either by direct testimony of consumers or by a keenness of intuition—shall be given high consumer favor. *From* the executive who hath it not shall progressively be taken away even the little consumer good will which he hath.

Meeting Consumer Specifications

This, however, is doubtless an over-simplification of statement. The generalization deserves a reservation of profound significance. It is this: Executive sympathy with and understanding of consumers' attitudes, desires and satisfactions is only one element of the producer-consumer complex. The other all-important element is the adequacy with which consumer specifications are met.

This challenge the executive himself cannot meet. It is the task of his organization—for the most part of the rank-and-file. The executive can, of course, influence it mightily—influence it only but not meet it. He can influence it for good or ill, for success or failure. The degree and quality of his influence is the measure of his leadership, his management, his executive ability in the truest sense.

After all, what is being said—anything more than that the job of a commercial organization is to satisfy its customers and that a good executive is one who gets his organization to do this well? That, of course, for it is a business kindergarten concept. But if there is any useful contribution to be made in this connection, it revolves about the question of *how* the executive can so motivate his organization to most effectively discharge its consumer responsibilities.

In trying to answer this question, there may develop some subtle but very significant values. The problem of organization motivation is, after all, almost the whole of the large problem to which enlightened personnel thinking has tried to contribute. The growing literature, the increasingly liberal philosophy and practices of modern personnel effort have all focused largely on this ultimate end. It is with the thought that the particular ideas here presented may be some slight contribution to this extremely important field that they are put forward in this particular way to this particular group.

It probably would require little argument to gain admission of the fact that a method was good which would increase consumer satisfaction and at the same time lead to more of a feeling of personal significance and value on the part of workers. It is the thesis of this presentation that the manner in which an organization's consumer responsibilities are imposed and checked can not only determine the quality of service to the consumer, but can add or detract greatly to organization morale.

Personal Authority in Meeting Consumer Responsibility

Even though the executive may have a very keen sense of what the consumer desires and how he is reacting to what the executive's organization is giving him, if the definitions of consumer responsibility are the executive's own—which is the usual situation—the entire relationship is one of personal authority. It is autocratic. The definition is formulated by the executive, and the adequacy with which the responsibility is being discharged is judged by the personal and subjective standards of the executive. It is responsibility to an individual and involves all the weaknesses of definition and execution which inhere in a single authority.

For the members of the organization such a situation means that their inspiration, their understanding, their growth, their sense of personal significance is limited by the executive's time, disposition, leadership and especially by his ability to translate his entire set of subjective values into objective realities which will make their working environment and forces vital and meaningful. This ability is extremely rare and very infrequently displayed even when it exists.

The Authority of the Revealed Situation

On the other hand the possibility does exist and has sometimes been demonstrated of defining consumer responsibility in a much more realistic and objective fashion. Decided realism can be gained by seeking at first hand the consumer's own definition of what he wants and how well he is satisfied with what he is getting. True "responsibility" then becomes the duty of the organization to produce goods and service as closely in conformity with such specifications as possible. It is imposed by the inexorable logic of the situation which the organization must meet if it is to exist and its members to eat. The checking of how well the responsibility is being met is through the same process, and is likewise realistic and direct.

The executive function is then one of gathering such standards and reactions and transmitting them to the organization. The authority involved is no longer personal—it is the authority of the revealed situation—arbitrary and autocratic perhaps, but reasonable, objective and specific.

Not that an empty function is left the executive; on the contrary, vital and dynamic material is given him with which to exercise a genuine leadership in a task by this means made intelligible and reasonable for his organization—a task of common interest and cooperative endeavor, and therefore of much greater inspiration.

The revelation of responsibility is no longer personal but social—a huge and significant difference. Activity of members of the organization becomes an effort to meet social needs expressed directly by those who have the needs, and not to satisfy one individual's interpretation of those needs, seriously limited in conception and execution as any individual interpretation must be.

The Effects on Workers

Under such conditions the worker's sense of personal significance cannot fail to expand, his life satisfaction to increase. He begins to share in the high adventure of social service. Dramatic values enter his working world; he has his moments. He ascends at least part way the hill hitherto occupied alone by the executive, and as he does his horizon extends. His citizenship is enhanced in value beyond a doubt. He lives more.

A crew of men on a machine which made roofing paper had been preached to about carelessness day after day with but little effect. Finally the foreman brought to them one morning a piece of roofing returned by the company's sales representative in an Arizona town. This piece of roofing had a large hole in it, burned by the action of the fervent sun in that state. Had it not been for a manufacturing defect, however, even the Arizona sun could not have done this. The sample was accompanied by a carefully written letter from the sales representative describing in detail the growing dissatisfaction of patrons with the company's product due to such defects. The demonstration, doubly concrete because of the exhibit and the letter, moved the crew greatly. For an hour they conferred earnestly about the piece of spoiled roofing. The foreman, standing near, confessed to hearing many details of manufacture of which he had heretofore been utterly ignorant. From that time on the workers took over the process to an unprecedented degree. The foreman's excited urging and cajoling ceased, as did a very large percentage of the defects.

Two metal workers in a machine shop gave eloquent testimony at once to an insistent need and managerial blindness to this need.

"I sure wonder just how that machine worked that we turned out after they sent it up to Blank's?" queried one.

"Dunno," answered the other.

"I'd certainly like to know. You and I schemed a lot on that to make her right. They didn't tell us beforehand and less after. Suppose they'll be coming around with another some time. If we knew somethin' about how it worked out—but we never know nothin' about such things!"

For a long time the crews on machines which made felt paper in a western mill had been under fire by their superintendent for poor quality which caused trouble further on in the factory where the rolls were received and coated with asphalt for final shipment. The superintendent's responsibility and authority both were personal—and practically ineffectual. When, however, the crews were taken into that part of the factory where their product was used and shown the actual trouble their defects caused and when the number of these defects found daily was posted in their mill together with the loss of time and material caused by each, the men took the matter so seriously that the trouble curve went down almost vertically. They had understood their responsibility in what was essentially a social situation—had assumed the duty of satisfying a social need—as soon as it ceased being something merely in the mind of a superior and was objectified for them.

Many cases could be described where social situations, described in terms of the ultimate authority of consumers' desires and reactions to products, have been placed squarely before organizations and the responsibilities assumed with almost unbelievable alacrity and intelligence. It is always extremely interesting to note the readiness to take such reports without resentment, however unreasonable, irrational and sometimes unjust consumer reactions are. "If that's what customers feel, we must act accordingly—that's our job," calmly remarked one employee when a particularly unjustified customer attitude was reported.

Conclusion

It is obvious that only an utterly self-sufficient and complacent management would deny that the best source for definitions of consumer desires and satsfaction is the consumer himself, and that where this definition can be gotten it is a much more reliable means of determining consumer responsibility than executive intuition, no matter how keen. It is likewise a safer basis for the executive's own appreciation of the necessities which determine the relative success or failure of his enterprise.

In addition, however, such firsthand definition assures a far readier understanding and acceptance of this vital responsibility on the part of the organization than would be the case were this to be imposed by the personal authority of the executive himself, and it assures an interested participation in the entire range of organization activity that could hardly be gained in any other way.

Such direct definitions therefore lead to much clearer knowledge of what organizations must aim at to gain consumer favor and a definitely stronger motivation to achieve that aim. That the accomplishment of these ends brings with it an increased sense of social and personal significance on the part of workers is as important—perhaps even more so—than the immediate purposes themselves.

Compressor Costs $50,000

THE Southwestern Light & Power Company has opened a new $50,000 gas compressor station four miles west of Agawam, Okla. This station takes gas from the Chickasha field at 70 pounds' pressure and sends it into the line to Chickasha at a pressure of 225 pounds.

Large Group Joins Rutgers Gas Study Course

MORE than 200 employees of the Public Service Gas and Electric Company in New Jersey have enrolled in the Rutgers University Extension Division's elementary course in "Manufacture, Distribution and Utilization of Gas." This course is under the sponsorship of the American Gas Association.

Although the gas course is primarily a home study course, groups of students are assembling in different centers one night each week under the leadership of engineers designated by the company.

Enrollments in this course for the study of the essential and technical principles of gas manufacture, are well distributed in the entire country, as well as Canada. Although a great many students engaged in the study of gas are enrolled in New Jersey, more than 400 in the entire country have responded to date to this educational opportunity adapted by the university to the gas industry.

Affiliated Association Activities

Oklahoma Utilities Association

S. I. McElhoes

S. I. McELHOES, Southwestern Light & Power Co., Oklahoma City, was elected president of the Oklahoma Utilities Association at its convention March 10 and 11 in Oklahoma City.

Other officers elected are: First vice-president, R. J. Benzel, Southwestern Bell Telephone Co., Oklahoma City; second vice-president, H. L. Montgomery, Cities Service Co., Bartlesville.

J. W. Duvall succeeded himself as chairman of the gas division, and W. R. Emerson was re-elected treasurer; the manager, Edward F. McKay, also was re-elected.

J. W. Duvall

Wisconsin Utilities Association

EXECUTIVE Secretary John N. Cadby has announced that the Accounting Section of the Wisconsin Utilities Association will meet at Racine, Wisconsin, Thursday, May 28, and Friday, May 29.

Illinois Gas Association

H. A. Kleinman

AT the annual convention of the Illinois Gas Association, held at Springfield, March 12 and 13, H. A. Kleinman, of the Peoples Power Co., Moline, was elected president, and W. L. Sedgwick, of the Illinois Power & Light Co., Chicago, vice-president.

Pennsylvania Natural Gas Men's Association

THE A. G. A. playlet entitled "Another Satisfied Customer" was presented at the March dinner meeting of the Pennsylvania Natural Gas Men's Association held in the Y. M. C. A. auditorium at Pittsburgh, Pennsylvania, March 4.

This humorous sketch in two scenes has for its theme the development of proper customer relations on the part of gas company employees. The cast of twelve representatives of the Peoples Natural Gas Company, Manufacturers Light and Heat Company, Wittmer Oil and Gas Properties and Equitable Gas Company was directed by Harry W. Ewald, assisted by K. P. Allen, both of the last named company.

Members of the cast were as follows: Mary Alice Bergman, C. H. Nist, Elizabeth Capp, Frances Hazley, Wm. Taggart, G. W. Turner, Ray Yeagle, Alice Wetter, Genevieve Ott, Peggy Dunsire, Adeline Graham, Mary McNair.

Music was rendered during the evening by J. M. Tunney and Samuel Walters, and Wayne Dulaney gave a humorous monologue.

Before the presentation of the playlet, Frank S. Williams, personnel director of the Ohio Fuel Gas Company, Columbus, Ohio, delivered an informative talk on "Employee Education," explaining in particular the system of committee study in successful operation with his company.

Empire Gas and Electric Association

A CONFERENCE of safety engineers and accident prevention people including all those interested in this activity largely in New York State will meet in a two-day session on May 21 and 22 at Briarcliff Lodge, Westchester County, N. Y.

H. H. Judson of the New York Edison Company, general chairman, will be in charge of the meeting. The meeting will open with a luncheon at 12:30 p.m. on Thursday, May 21.

The speakers will include the following:

Chairman's Report.

"Facts and Figures on Accident Costs," G. W. Stone, Utilities Mutual Insurance Company.

"Reducing Accident Severity."

"Physical Examinations," Dr. J. J. Wittmer, New York Edison Company.

"New Safety Devices and Equipment," W. E. Hughes, Rochester Gas & Electric Company.

"Inspection Methods," E. S. Licht, Empire Gas & Electric Company.

"Job Training and Accident Prevention," W. H. Warner, N. Y. & Queens Electric Light & Power Co.

"Safety in the Home," Miss Helen Smith, Rochester Gas & Electric Company.

"Airways and Airport Safety Problems," Harry E. Williams, Empire Gas & Electric Company.

"Safety Requirements of Insulating Protection Devices," E. J. Rutan, New York Edison Company.

"Fire Fighting Equipment," H. N. Gainer, New York & Queens Electric Light & Power Co.

"Accident Prevention Problems in the Electric Industry," J. A. McCarthy, New York Edison Company.

On Thursday evening after dinner, a program of motion pictures on accident prevention and resuscitation will be given under the direction of C. E. Everett, of the United Electric Light & Power Company.

Members of Accident Prevention Committees of the American Gas Association will be most welcome.

Make hotel reservations direct with the Lodge which may be reached from the Harmon, Scarboro or Ossining stations of the Hudson River division of the New York Central Railroad.

Missouri Association's Silver Anniversary

RECOLLECTIONS of "old timers" will be one of the interesting features of this year's annual convention of the Missouri Association of Public Utilities to be held April 16, 17 and 18 at Excelsior Springs, Mo.

As this will be the twenty-fifth annual convention of the organization, several old-time members will take part in a silver anniversary celebration during the annual banquet. The "old timer" festivities will be led by John C. Hall, St. Louis, Mo., and J. A. Whitlow, Tulsa, Okla.

Convention headquarters will be at the Elms Hotel, Excelsior Springs. H. M. Patton, of St. Louis, president of the association, will preside at the business sessions. The association is composed of the gas, electric, water and electric railway utilities in Missouri.

Among the speakers will be: Paul S. Clapp, New York City, managing director of the National Electric Light Association; Alexander Forward, managing director of the American Gas Association; Milton R. Stahl, Jefferson City, Mo., chairman of the Missouri Public Service Commission; J. N. Shannahan, Omaha, Neb., president of the Omaha & Council Bluffs Street Railway Co.; Ralph R. Parks, Columbia, Mo., Farm Electrification Expert, Missouri College of Agriculture; Harry Bussmann, St. Louis, Mo., president of the St. Louis Electrical Board of Trade; and Judge Harry H. Ramey, Salyersville, Ky.

An Open Forum for the discussion of timely utility problems will be held at an evening session April 16. The leaders of the discussion will be: Electric—B. J. George, Kansas City, Mo., Kansas City Power & Light Co.; Gas—E. D. V. Dickey, Hannibal, Mo., Citizens Gas Co.; Water—H. A. Gallagher, Independence, Mo., Independence Water Works Co.; Electric Railways—F. G. Buffe, Kansas City, Mo., Kansas City Public Service Co.

A special entertainment program, souvenirs, prizes, etc., will be provided for the ladies accompanying delegates to the convention.

Convention Calendar

Empire State Gas & Electric Association, Gas Section,
Briarcliff Lodge, N. Y.
April 2 and 3.

A. G. A. Distribution Conference,
St. Nicholas Plaza Hotel,
Cincinnati, Ohio.
April 8, 9, and 10.

Arizona Utilities Association,
Arizona Biltmore Hotel,
Phoenix, Ariz.
April 9 to 11.

Maryland Utilities Association,
Lord Baltimore Hotel,
Baltimore, Md.
April 10.

Mid-West Gas Association,
Julian Dubuque Hotel,
Dubuque, Iowa.
April 13 to 15.

Missouri Association of Public Utilities,
Excelsior Springs, Mo.
April 16, 17, and 18.

Southwestern Gas Measurement Short Course,
Norman, Okla.
April 21 to 23.

A. G. A. Accounting Conference,
Stevens Hotel,
Chicago, Ill.
April 23 and 24.

Pennsylvania Gas Association,
Galen Hall,
Wernersville, Pa.
April 28 to 30.

Chamber of Commerce of United States,
Atlantic City, N. J.
April 28 to May 1.

A. G. A. Executive Conference,
Ambassador Hotel,
Atlantic City, N. J.
May 1 and 2.

International Chamber of Commerce,
Washington, D. C.
May 4 to 9.

National Fire Protection Association,
Toronto, Ont.
Week May 11.

A. G. A. Natural Gas Department,
Peabody Hotel,
Memphis, Tenn.
May 11 to 14.

Empire Gas & Electric Association, Safety Division,
Briarcliff Lodge, N. Y.
May 21 and 22.

Wisconsin Utilities Association, Accounting Section,
Racine, Wis.
May 28 and 29.

Institution of Gas Engineers,
London, England.
June 2, 3, and 4.

Canadian Gas Association,
Montreal, Quebec.
June 4 and 5.

Home Service Course, Columbia University,
New York, N. Y.
June 6 to 24.

National Electric Light Association,
Atlantic City, N. J.
June 8 to 12.

Southern Gas Association,
Chattanooga, Tenn.
June 9, 10, and 11.

Advertising Federation,
New York, N. Y.
June 14 to 18.

A. G. A. Domestic Appliance Course,
Testing Laboratory,
Cleveland, Ohio.
June 15 to 20.

Pacific Coast Gas Association,
San Francisco, Calif.
September.

American Electric Railway Association,
Atlantic City, N. J.
September 26 to October 2.

American Gas Association,
Atlantic City, N. J.
October 12 to 16.

Bituminous Coal Conference,
Pittsburgh, Pa.
November 16 to 21.

Pennsylvania Gas Association

PLANS for the annual Pennsylvania Gas Association convention to be held at Galen Hall, Wernersville, Pa., on April 28, 29 and 30 are about completed, according to Edward G. Boyer, president of the association.

"We had a fine meeting last year, very well attended," Mr. Boyer said, "and we are anticipating even a better meeting this year with greater attendance."

The program in full, subject to change, follows:

TUESDAY, APRIL 28, 1931

12:30 P.M.

Council and Executive Business Meetings—Luncheon

2:00 P.M.

Golf, Tennis, Baseball, etc.

4:00 P.M.

Registration—Galen Hall

7:00 P.M.

Banquet—Galen Hall

8:00 P.M.

Business Meeting
Opening of Conference
President's Address
Message from the A. G. A., by L. C. Smith
Reading of Minutes
Treasurer's Report
Election of Officers

8:45 P.M.

Address—"What's Best Business." Conrad N. Lauer, President, Philadelphia Gas Works Co., Philadelphia, Pa.
Address—E. A. Hirschman, Secretary of York Chamber of Commerce, York, Pa.

10:00 P.M.

ENTERTAINMENT

WEDNESDAY, APRIL 29, 1931

Production

Chairman H. Smyser Bair, Presiding

9:30 A.M.

"Production and Distribution of Butane Gas." Charles M. Sturkey, Southern Division Manager, National Public Utilities Corp., Lexington, N. C.

10:00 A.M.

"Gas Compression." F. L. Lucker, Ingersoll Rand Co., New York City

Distribution

Chairman W. G. B. Woodring, Presiding

10:30 A.M.

"High Pressure Gas Storage." C. C. Jones, Philadelphia Gas Works Co., Philadelphia, Pa.

11:00 A.M.

"Metering High Pressure Gas." Arthur Benson, Metric Metal Works, Erie, Pa.

New Business

Chairman J. Ward Crankshaw, Presiding

11:30 A.M.

"What Are the Advantages of Special Merchandise Sales to the Gas Industry as a Whole?" J. C. Smith, Commercial Agent, Consumers Gas Co., Reading, Pa.

12:15 P.M.

Address—"Employees Education." A. B. Millar, Managing Director, Pennsylvania Gas Assn., Harrisburg, Pa.

PRIZE AWARD

1:00 P.M.

Luncheon—Galen Hall

AFTERNOON

Golf, Tennis, Baseball, etc.

7:30 P.M.

Banquet—Galen Hall

8:30 P.M.

"Trend of the Gas Industry." R. S. McBride, Consulting Engineer and Associate Editor, American Gas Journal, New York City

"College Professor's Slant on Utilities Business." Dr. Calvin O. Aulthouse, Principal, Central High School, Philadelphia, Pa.

10:00 P.M.

ENTERTAINMENT

THURSDAY, APRIL 30, 1931

Accounting

Chairman A. S. Corson, Presiding

9:30 A.M.

"Customer Contact." F. R. Swanson—Norristown, Pa., Philadelphia Electric Co.

10:10 A.M.

"Machine Accounting." J. W. Mackie, Luzerne County Gas & Electric Co., Kingston, Pa.

10:50 A.M.

"Order Counter Practice." E. N. Keller, Philadelphia Electric Co., Philadelphia, Pa.

New Business

Chairman J. Ward Crankshaw, Presiding

11:30 A.M.

"House Heating Conversion Type to Regulate Type and Comparative Operating Costs." A. A. Edwaldsen, Washington Gas Light Co., Washington, D. C.

12:00 N.

"Results Obtained by Continuous Industrial Survey." Ellwood Griest, Philadelphia Gas Works Co., Philadelphia, Pa.

12:30 P.M.

"Relation of Service to Sales." N. B. Bertolette, President, The Harrisburg Gas Co., Harrisburg, Pa.

1:00 P.M.

Luncheon—Galen Hall

Canadian Gas Association

THE 24th annual convention of the Canadian Gas Association, to be held in Montreal, Canada, June 4 and 5, 1931, promises to be one of the most interesting ever held by that body.

The tentative program alone is worthy of note by delegates contemplating taking in this highly instructive and promising meeting. About fourteen papers, more or less of a technical character, are being arranged on the subjects of house heating, industrial development, long-distance transmission of manufactured and natural gas, trends in modern gas engineering, new locations for natural gas, design of transmission lines, aeroplane and cyclone insurance for gas companies, use of high sulphur coals in gas manufacture, and other subjects of vital interest to gas men at this time.

The entertainment features include the usual interesting annual dinner, visits to the large coking plant of the Montreal Coke & Mfg. Company, sight-seeing, etc.

On June 3 the managing committee, Industrial Gas Section, American Gas Association, will meet at Montreal, and will take part in the Canadian Gas Association convention on June 4 and 5.

Convention headquarters will be the Windsor Hotel, to which all reservations should be addressed as soon as possible. Any gas man purposing attending this annual meeting and who desires to be placed on the mailing list for further information, can address G. W. Allen, secretary-treasurer, Canadian Gas Association, 21 Astley Avenue, Toronto, Canada.

Extending Gas Mains in New Jersey

PUBLIC Service Electric and Gas Company will lay approximately 200 miles of gas mains this year in the New Jersey territory served by the company. Practically all of these mains will be constructed to provide service for new customers in communities already supplied with gas.

When the work is completed, the company will have in use more than 6,200 miles of mains, sufficient to reach from Newark to Honolulu, with 600 miles to spare.

As an indication of the growth of the gas business since Public Service was organized, there were but 1,495 miles of mains in service December 31, 1903.

M. I. T. Fuel and Gas Engineering Field Work Finished

TESTS of broad interest in several phases of fuel utilization marked the six months' field work of the course in fuel and gas engineering at the Massachusetts Institute of Technology, Cambridge, Mass., recently brought to a close. At the Tide Water Oil Company's refinery in Bayonne, New Jersey, gas and oil-fired crude stills, solution stills and cracking coils were studied.

The efficiencies of a gas producer and a billet reheating furnace were determined at the Lackawanna Plant of the Bethlehem Steel Co. and extensive tests were made on the dry quencher and Koppers liquid purification system at the gas plant of the Rochester Gas and Electric Corporation. The 1,400-pound boilers and turbines at the Edgar Station of the Edison Electric Illuminating Company of Boston were also subjects for part of the test work.

The field work follows a year's study in theory of combustion, natural and manufactured fuels, power development, furnace design, utility economics, fluid flow, heat flow and kindred subjects in the graduate course at Massachusetts Institute of Technology.

Statement of the Ownership, Management, Circulation, Etc., Required By the Act of Congress of August 24, 1912

Of American Gas Association Monthly published monthly at Brattleboro, Vt., for April 1, 1931.
State of New York, County of New York, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Allyn B. Tunis, who, having been duly sworn according to law, deposes and says that he is the Editor of the American Gas Association Monthly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., New York, N. Y.; Editor, Allyn B. Tunis, New York, N. Y.; Managing Editor, None; Business Managers, None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

American Gas Association, 420 Lexington Ave., New York, N. Y.; Clifford E. Paige, President, 420 Lexington Ave., New York, N. Y.; Vice-Presidents, R. W. Gallagher, N. C. McGowen, Arthur Hewitt, 420 Lexington Ave., New York, N. Y.; William J. Welsh, Treasurer, 420 Lexington Ave., New York, N. Y.; Alexander Forward, Managing Director, 420 Lexington Ave., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is . (This information is required from daily publications only.)

ALLYN B. TUNIS, Editor.

Sworn to and subscribed before me this 19th day of March, 1931.

(Seal)

LAWRENCE P. BROWN,

Notary Public, New York County,
Clerk's No. 464, Register's No. 2B332.

(My commission expires March 30, 1932.)

Personal and Otherwise

W. W. Stein, formerly manager of the Laredo, Texas, district of the United Gas System, has been placed in charge of the Mississippi division of the pipe line department with headquarters at Jackson, Miss. His former position has been taken by S. L. Robertson.

M. M. Farley, chief clerk of the gas measurement department of the Ohio Fuel and Gas Company, has been named superintendent of the gas measurement department of the Panhandle Eastern Gas Company.

Clark P. Read, general auditor for the Lone Star Gas Company, has accepted a post as general auditor of the Northern Natural Gas Company and affiliated companies at Omaha.

B. F. Mayer has been appointed to direct public relations work for the Joplin Gas Co., Joplin, Mo.

Guy G. Crane has been appointed vice-president and general manager of the Bangor office of the Bangor Gas Light Company. Mr. Crane succeeds Robert B. Ingle who resigned recently.

C. A. Olsen has been made president of the Fox Furnace Company to succeed W. H. Hill who has been appointed chairman of the board of directors with headquarters in New York City.

Bert H. Peck, chief of the engineering bureau of the Public Utilities Commission in Washington, D. C., has resigned to become associated with the Washington Gas Light Company.

John J. Wholey, formerly connected with the sales department of the Lowell Gas Light Co., has become sales manager of the Ramapo Gas Corp., a subsidiary of the American Commonwealth's Power Corp.

D. S. McManus has been named manager of the distribution department of the Louisiana division of the United Gas system with headquarters at Lake Charles, La.

L. S. Davies of Chicago, Ill., has been appointed by the Seattle Gas Co., Seattle, Wash., as superintendent of the extension to Kent, Wash.

George E. Whitwell has been elected vice-president in charge of sales of the Philadelphia Electric Company and assumed his new duties April 1. Mr. Whitwell formerly was vice-president in charge of sales and service of the Philadelphia Company and affiliated corporations of Pittsburgh.

Thomas F. Walsh, vice-president and director of the Saugerties Gas Light Co., has retired from service but will retain his official connection with the company. William I. DuBois has been appointed active manager to take over Mr. Walsh's duties.

Graydon Stetson, vice-president of F. L. Putnam and Co., of Boston, was elected a director of the Newport Gas Light Company recently.

C. A. McDowell has been named production superintendent at the Beeville, Texas, division of the United Gas System.

L. M. Holmes, industrial gas engineer, has been added to the commercial department of the Central Public Service Co., Chicago, Ill. Mr. Holmes was formerly manager of gas sales for Winnipeg Electric Co., Winnipeg, Man.

Edgar A. Rodgers has been named manager of the new Cleveland office of Ford, Bacon, and Davis, Inc. His former position of manager of the Philadelphia branch will be taken by Major Shipley Thomas, formerly of Benedict Stone Company of New York.

William J. Luther, manager and treasurer of the Attleboro Gas Light Company, has been named acting treasurer of the Taunton Gas Light Company, which is the parent organization.

George A. Wieber has been appointed commercial manager of the Glens Falls division, New York Power and Light Corp. Mr. Wieber succeeds E. A. Brand, who has been transferred to the Buffalo office of the Niagara Hudson System.

Mrs. Luella M. Fisher, formerly associated with the Erie Stove and Manufacturing Company, of Erie, Pa., has been appointed director in charge of home service for the Iroquois Gas Corporation, Buffalo, N. Y., the United Natural Gas Company, Oil City, Pa., and the Pennsylvania Gas Company, Warren, Pa. and affiliated companies.

C. B. Shaklee has been named general manager of the Western Gas Company of Longview, Wash.

Howard M. Naylor, construction engineer with the Kansas Power and Light Company, has been appointed Topeka district manager of the company, succeeding George H. Ahlborn.

P. L. Tucker, who has been supervisor of sales for the Northern Indiana Public Service Company in the Valparaiso district, has been transferred to Warsaw to assume a similar position.

Kent W. Graham, who has been associated with the Cities Service organization since 1912, has been named sales manager of the Pueblo Gas and Fuel Company, succeeding R. T. Hildebrand.

Home Service Educational Courses

EDUCATIONAL courses for the benefit of gas company home service directors, service men and others interested have been announced by the American Gas Association Testing Laboratory, Cleveland, Ohio, and Columbia University, New York, N. Y., the latter in cooperation with the Association. The Course in Domestic Gas Appliances at the Testing Laboratory in Cleveland will take place June 15-20, under the direction of the Laboratory staff. This is an intensive week's course of lectures and laboratory work on all domestic gas appliances, the instruction being given by laboratory engineers and others in the industry who are specialists in certain relative subjects. The course is sponsored by the Home Service Committee of the American Gas Association and this will be the third year it has been held. In 1930, there were forty men and women registered—seventeen home service workers; seventeen service men; three gas engineers; two college teachers and one public health official.

The Columbia University course likewise covers a range of subjects of value to home service workers. The morning lectures are conducted by Dr. C. J. Lynde, head of the household equipment department, assisted in the laboratory work by T. H. Schleuning, test engineer of the Consolidated Gas Company of New York.

Students may take the course without examination and without credit. College matriculants may receive college credit by registering as regular students and passing the final examination.

The afternoon work is optional, programs being planned by the Home Service Committee for seven afternoons which include visits to various home service departments around New York.

Announcements containing full information and details relative to these courses were recently sent out by Alexander Forward, managing director of the American Gas Association, to those interested. Further data may be had upon request at the American Gas Association Headquarters, 420 Lexington Avenue, New York, N. Y.

The Gas Industry in Other Countries

AS constant readers of the technical press of the gas fraternity in other countries, we have always been impressed with the intelligent and scholarly "editorializing" which generally accompanies the paper and reports printed elsewhere in the same issue. The January 7, 1931, number of the *Gas Journal*, London, England, is no exception to the rule and the American Gas Association is highly gratified to find that the progress report of the Pipe Joint Research Committee is printed under The "Journal" Technical Record. In editorial notes we are told that the report is well worth reading and that in common with most problems tackled by the American Gas Association the research under review is characteristic by its thoroughness, its practical nature, its wide scope and its obvious spirit of keen cooperation between what might be termed those within and those without the American gas industry. The editor suggests that the inclusion of manufacturers of plant and appliances and the gas makers and the distributors as "being within" is the reason that good results are produced so quickly. The editorial then develops into what is practically a concise abstract of the outstanding features of the investigation.

Similar gratifying quasi-engineering comments deal with the recent report of the American Gas Association's Committee on Dehydration in which the following summary appears:

"Two exceedingly interesting facts are brought out in the report. The first is the reduction in pumping pressures required for fixed loads, due to the removal of naphthalene, and the second relates to the determination of the temperature of the gas in the distributing system, to find what is a suitable control point close to the plant which will indicate the required amount of dehydration at various seasons of the year. It is pointed out that there are two factors affecting the temperature of the gas in the distribution system—namely, gas temperature at the outlet of the holder, and ground temperature. The gas temperature at the holder outlet is in turn affected by the temperature of the gas entering the holder, the rate of gas flow through the holder, and the atmospheric temperature. The effect of holder outlet temperature on the distribution main gas temperatures is eliminated in favor of ground temperatures in direct proportion to the length of time the gas remains in the distribution mains, and it is obvious that often the gas at points distant from the works has not been exposed to ground temperatures for a sufficient length of time to recover from the effect of holder outlet temperature. Gas temperature carries well above the ground temperature line when the atmospheric temperatures are well above it, and similarly it falls below the ground temperature line during the months of low atmospheric temperatures."

"Economic Facts and Sales Promotion," by H. E. Dexter, from the report of the Committee on Water Heating, and the report of the subcommittee on Sales Promotion, by M. M. Scott, are printed in the January 14 issue, with this material as a text, under the heading of "The Water Heating Load." After abstracting and reviewing the work of Messrs. Dexter and Scott, the editor remarks: "But all the salesmanship in the world will not cut much ice unless the price is right—and by price we mean that of both the appliance itself and the gas which it consumes. The cost of gas must be such that the householder will not consider himself too greatly penalized for the added convenience of gas as compared with other fuels."

A. G. K.

The Harnessed Flame

BETWEEN the brilliant silver and red modernistic covers of a 36-page booklet appears the story of a gas company serving a community of 4,000,000—a company 118 years of age. The harnessed flame is described as "an object of fear, desire and awe, since first Prometheus stole it from the gods, the flame which is the symbol of life, has been harnessed to the service of humanity. Appallingly dangerous when at large, devastating whole countries in the form of forest fire, or overwhelming populous cities in the volcano's rage, it has been tamed and disciplined and now it performs its appointed task so regularly, so safely, that we forget that it was not always obedient to our commands."

The harnessed flame, however, is more than the story of one gas company, incidentally The Gas Light and Coke Company of London, England; it is an extremely interesting, and well illustrated, description of the gas industry from its earliest days to its present modern adaptations for domestic, commercial and industrial life. Coming from a country where gas companies generally exist as separate entities and sell gas and its by-products exclusively in competition with all other available fuels, there is apparent throughout a refreshing vigor of expression with regard to competition and particularly with reference to electricity. Nowhere can this attitude be described as narrow or stultified for, while the booklet does not employ the term "form value" nevertheless that is the underlying thought, as for example, "Electricity is a wonderful force, and the man in the street has heard a great deal more about it than he has been able to understand.* * * He often assumes that it is better than gas, because it is a more recent invention than gas.* * * Some people still think electricity must be used for all purposes because, like wireless, it is 'modern.' Meanwhile in America, one of the homes of real efficiency, there have been through these latest years the most remarkable developments in the use of gas for heating, cooking, and industrial heat purposes."

Speaking of American water power production of electricity as well as countries like North Italy, Switzerland, Sweden and Norway with much water power and little or no coal, as compared with England, rich in coal and poor in water power, the author concludes that whereas in the former electricity should be used in every possible way, in England "gas is the obvious and most economical form of fuel." He stresses that the electricity is to be used mainly for motive power and gas as the harnessed flame for heat and points out that whereas "gas or electricity" used to be a cry some years ago, it is now becoming more and more widely recognized that the cry should be "gas *and* electricity."

Passing speedily from an interesting diagram showing the percentage of gas and by-products produced from one ton of coal as compared with the amount of electricity produced in a modern generating station from one ton of coal, to the history of gas, there is a neat little story which illustrates the inherent safety of the gas holder.

"When the first gas holder was put up in Westminster the Directors of the Company were compared to Guy Fawkes. A body of Members of Parliament, ac-

companied by eminent scientists, went to see whether the presence of such quantities of gas near the Houses of Parliament was not a danger to the Lords and Commons. The engineer in charge set out to reassure them. He took a chisel, pierced a hole in the side of one of the holders and put a light to it. Only a harmless jet of flame appeared. But the strain was too great, not for the holder, but for the M.P.'s and scientists. They had taken to their heels."

Some of the paragraph headings which follow are self-explanatory as for example "No Profiteering" which illustrates regulatory control; "Rationalization" described as "rationalization means a maximum of output with a minimum of cost" which points out that since 1868 the company has taken over 14 companies which represented amalgamations of 25 earlier companies together with reference to extensions down along the River Thames away from London.

Two full-page illustrations described as "The Chart" show graphically the stages from "Coal Mine to Consumer" and "The Making of Gas and By-Products" are further described in the following succinct phrases, "We take our privileges for granted. If an advertised train failed to run, if the turning of a tap did not bring the expected water or gas, we should be bewildered and indignant."

Industrial gas we are told is large enough to have a section to itself and in fact should "require a pamphlet larger than the whole of this one to do anything like justice to this branch alone. ***We sometimes overlook the fact that besides its domestic use, and the fact, also sometimes overlooked, that some of our most central and most brilliantly lit main streets are lit by gas, gas plays a big part in industry. ***That there is practically no industrial purpose in which gas may not be employed advantageously is shown by the fact that the industrial consumers of the company's gas comprise 1,155 different businesses."

The requirements of the future, too, are treated at length and the increase in storage and main capacity required by the ever-increasing demands of the customers along with the research necessary for advancement in any industry is also discussed. So, too, are what might be termed the "social" problems within the company itself and reference is made to the co-partnership scheme which has always been a matter of interest to those engaged in the gas industry.

The booklet concludes with a statement of the aims and wishes of the company with regard to the community it serves, of which it says it is a servant; that the company does not exploit and that it is using every resource known to science to keep its service unsurpassed by any in the world.

A mighty readable and interesting booklet with a "new slant" on the problems of the company and an eloquent spokesman for the quality of service rendered to its customers.

A. G. K.

Natural Gas Proceedings

for the years 1922, 1924, 1925, 1926, 1927, 1928 and 1929 are available to members at $1.00 per volume postpaid.

Inasmuch as the supply of these volumes is limited, requests for copies will be filled in the order of their receipt.

ADDRESS

AMERICAN GAS ASSOCIATION

420 Lexington Avenue New York City

J. W. Dunbar Retires from Congress

WITH the adjournment of Congress, last month, Representative James W. Dunbar of New Albany, Indiana, a well-known figure in the gas industry, retired from office.

Commenting upon the retirement of Representative Dunbar, Congressman Louis Ludlow, Democratic representative from the Indianapolis district, said:

"There are 435 members of the House of Representatives and 434 of them are going to feel that they have lost a friend and brother when Representative 'Jim' Dunbar of the Third Indiana district retires to private life. If Mr. Dunbar has an enemy in the world, which is unthinkable, that enemy is certainly not located in Washington. Everybody here likes him. In a popularity contest he would even outstrip the well-known fiddler, Speaker Nick Longworth, who sometimes fiddles when the House burns up time.

"Mr. Dunbar is the only member of Congress who can scold the House, and it loves him still. He 'took a fall' out of his colleagues when the House was considering the bill to add half a million dollars to the million-dollar appropriation to complete the memorial to George Rogers Clark at Vincennes and although he belabored them like an old-fashioned schoolmaster tanning a refractory pupil nobody got mad, the reason being that it was Jim Dunbar doing it. If it had been a less popular person there probably would have been a free-for-all melee. Instead of hopping onto him the members in control of the debate on both sides of the aisles yielded him all the time he wanted or needed to do a neat job of castigating the House."

A. G. A. Exhibit at Ceramic Exposition

AT the 1931 Ceramic Exposition held in New Brunswick, New Jersey, March 17 to 21, one booth contained samples of the work done in connection with the American Gas Association Industrial Gas Research project in the application of heat to ceramics. This booth was in charge of Arthur P. Watts and Kenneth H. Green, American Gas Association research workers at Rutgers University.

Hundreds of samples of glazed tile directly fired with gas in different controlled atmospheres were shown. The progress that has been made through this research in directly firing these glazes, without the use of a muffle, created a great deal of interest. It is believed that this was the most complete exhibition of direct-fired tile ware that has yet been shown.

The exposition was participated in by several dozen manufacturers of ceramic equipment and other exhibits consisted of showings of the finest china, pottery, glass and other ceramic products.

Testing Laboratory
R. M. CONNER, Director
MANAGING COMMITTEE
J. S. DEHART, JR., Chairman N. T. SELLMAN, Secretary

Research Activities

By F. R. WRIGHT
Publication Editor, A. G. A. Testing Laboratory

THE A. G. A. Testing Laboratory's investigational work first began as a survey of conditions connected with the utilization of gas for domestic purposes. Types of city gases in use, their chemical composition, and the pressures at which they were supplied to the consumers' premises, in the various cities of the country, were first ascertained.

Selecting first the most widely used gas appliances and appurtenances, the actual laboratory research began, with a view to the development of suitable national basic requirements for safety, durability and performance of such equipment. This work on various appliances was directed by committees of experts representing the gas industry, governmental bodies, allied trade organizations, technical societies, and industries, in fact every interested national element.

Although the original requirements were based upon the best recognized gas engineering practices and the common experience of authorities in this field, new developments and progress of the art have required periodical revisions of these requirements and the research in this field continues and increases year after year.

Present activities along this line are too extensive to be outlined in detail, but among the important problems are research in the development of A. G. A. Approval Requirements for hotel and restaurant ranges, garage heaters, and high-pressure gas boilers, as well as extensive revisions and additions to the gas range requirements.

Investigational work on butane-air and various types of "bottled gases" in the determination of requirements for ranges utilizing these gases required the purchasing of additional special equipment and extensive laboratory tests. Research of this nature has proven invaluable to committees in the establishment of comprehensive and satisfactory basic standards for the construction, performance, and safety of gas appliances.

One of the most extensive investigations carried out by the Laboratory, and one which is proving to be of considerable importance to the industry, is the research on mixed gases. This included

Laboratory Research Staff

a study of the utilization characteristics of various gas mixtures wherein both chemical and physical properties such as specific gravity, heating value, chemical composition, and gas pressure, were varied. The initial investigation in this line extended over a period of approximately two and one-half years, during which time more than 175,000 separate tests were conducted.

The results comprise nearly two dozen progress reports, including over 1,000 pages of typewritten discussion and data which will be summarized and made available to the entire gas industry in the near future.

Thus the fact is emphasized that research is not a matter of waving a wand and suddenly making a tremendously important discovery, but that it is a practical, scientific process requiring uninterrupted concentration and extensive experimentation. Although the original investigation of mixed gases included a collateral study of the rates of flame propagation, work in this field has been extended to include many of the other elementary gases. The initial investigation was confined to the various types of city gases in common use, but in view of the value of such information and the need for additional data concerning the use of higher hydrocarbon gases for enrichment purposes, the study is being extended for the purpose of securing reliable information as to the possibilities along this line.

With a view to reducing the annual losses of gas in distribution systems as well as lowering the expenditures necessary for repair and replacement of defective pipe joints, the Distribution Committee of the Technical Section of the A. G. A. recommended a thorough investigation of the whole problem.

Research in this field has now been under way at the Testing Laboratory since July, 1929, during which time a large mass of information on the subject has been developed. The work was confined, at the start, to bell and spigot joints, and included as its main features a study of old joints removed from service to determine the best means of repairing them, the testing of numerous new joint combinations prepared in various ways, together with other investigations collateral to the main problems. The basic tests were conducted on small size joints, the majority being of the 4-inch size, in order to reduce the cost of material and to permit of easier handling. The investigation has been extended, however, to include larger sizes.

Arrangements have been made with the Cast Iron Pipe Research Association to conduct an extended series of tests on various types of mechanical joints. The methods for conducting many of the tests on these joints follow the same general lines that were employed in the testing of bell and spigot joints, although the test pressures are considerably higher. In addition, a number of special tests have been devised to

meet particular conditions applying to these joints.

The research work on both bell and spigot joints and on mechanical joints is characterized by thoroughness and accuracy, and when completed will include data which are both authoritative and extensive.

The Laboratory's activities were extended into the field of industrial research by the assignment of two such problems to the organization for study in 1931. The first consists of a study of the characteristics of burning gas with preheated air. The first phase of this subject was completed during January of this year, and other angles of the problem are now being investigated. The second problem consists of research in the elimination of noises in industrial gas burners. This is in line with the industry's general plan for improving ways and means of utilizing its product. The results of this investigation thus far indicate the possibilities of eliminating noises from this source, or at least reducing them to a negligible amount.

It has been said that "Research is a weapon of offense in the search for wider markets, and of defense when a market is threatened by competing materials or processes, themselves the product of research carried out for their makers." However, "Like any weapon of offense or defense, the research weapon should be forged and sharpened ahead of a pressing necessity for its use. Research in time to meet an emergency, whether that emergency be foreseen or unforeseen, is far more valuable than research hurriedly planned and hastily executed after the necessity for it has become a matter of industrial life or death. To wait until a trouble has developed into a disaster before starting some research work to correct it, is comparable to waiting until flames are bursting through the windows of the plant before ordering fire hose or fire escapes."

The gas industry is aware of the value of anticipating future trends and possibilities, and in advanced preparation to meet future conditions. Progress in the industry due to research is well exemplified by the fact that in the fifteen-year period from 1913 to 1928, some 20,000 new uses for gas were developed. These include only a few of the possible ways in which gas will be made to serve the needs of mankind, as unquestionably research will develop manifold uses in the future, unheard of at the present time.

Tells of A. G. A. Research Work

AT the March meeting of the Commercial Council of the Consolidated Gas Company of New York and affiliated companies Eugene D. Milener, of the A. G. A. Headquarters staff, gave an informal discussion of the research movement in the gas industry.

Mr. Milener traced the research sponsored by the American Gas Association beginning at the gas well and the coal field, through the transmission lines, the gas works, the distribution lines and finally to the home and factory.

It was pointed out that the amount of research being conducted in the gas industry now compares favorably with that being sponsored by other leading industries.

Mr. Gallagher Retires as Chairman

AT the March meeting of the Executive Board of the American Gas Association, President C. E. Paige announced the resignation of R. W. Gallagher, president of the East Ohio Gas Company, as chairman of the A. G. A. Testing Laboratory Managing Committee.

The following statement was made a part of the records of the Board:

"The President has received and accepted with great regret the resignation of Mr. Ralph W. Gallagher as chairman of the Managing Committee of the Testing Laboratory. Sorry as we are to lose him in this position, we recognize the pressure of other demands on his time and thought and he has certainly done his share.

"Mr. Gallagher has been chairman of the Managing Committee from the inception of that undertaking. In its early days, the Laboratory was housed in a building furnished by The East Ohio Gas Company, of which he is now president, and the facilities and organization of that company were then and have continued to be of greatest help.

"In large measure, the success of the Laboratory has been due to Mr. Gallagher. He has given freely of his time and material resources—has presided over nearly all the Managing Committee meetings for six years—has contributed his counsel and constructive ability without hesitation and without stint. His conception of what the Laboratory should mean to the industry and stand for in the public mind has been a balance wheel in the operation of that institution. The Association owes him the deepest appreciation and gratitude.

"J. S. DeHart, Jr., of the Isbell-Porter Company, Newark, N. J., has been named to succeed Mr. Gallagher as chairman of the Laboratory Managing Committee."

Northern Illinois Population Gains

SEVENTEEN counties in Northern Illinois, exclusive of Chicago, show a population gain of 37 per cent during the ten years since 1920, compared with a gain of less than 2 per cent for the rest of the State, excluding Chicago. According to a report compiled by the statistical department of the Public Service Company of Northern Illinois, these seventeen counties, which are those in which the Public Service Company supplies gas and electricity, represent 17 per cent of the area of the State, although they have accounted for nearly 89 per cent of the State's total gain in population in the past ten years.

According to the 1930 census the seventeen counties mentioned—Chicago excluded—showed a ten-year population increase of 398,667, a gain approximately eight times that of the remaining eighty-five counties. This means that, on the average, a number of persons almost equal to the present population of Joliet has been added to the northern Illinois region every year for the past decade. That the rate of increase is growing larger in these seventeen counties is indicated by the fact that the 1920 census credited them with a 20.5 per cent gain in population for the ten years preceding. During that time the population of the rest of the State, excluding Chicago, increased less than six per cent.

Instructions for Testing and Repairing Gas Meters

■

Compiled by

GEORGE A. LANE

and

WILLIAM A. CASTOR

■

PUBLISHED BY

AMERICAN GAS ASSOCIATION

■

Twenty-five Cents Per Copy

Accounting Section

J. I. BLANCHFIELD, Chairman H. W. HARTMAN, Secretary WILLIAM A. DOERING, Vice-Chairman

Interest Grows in Proposed Roundtable Discussion at Accounting Conference

IN presenting the final program of the Accounting Section Conference, which will take place April 23-24 at the Hotel Stevens, Chicago, Ill., the attention of the attending delegates is particularly called to the roundtable luncheon discussions which will be held at 12:30 p.m., Thursday, April 23.

It has long been the policy of the Section to encourage the frank interchange of views on all subjects, and to utilize the opportunity presented at the conferences for members to become better acquainted. Luncheon roundtable conferences have been urged for some time as a means of carrying out this policy and under the direction of M. E. Brown every effort will be made to have the luncheon discussions not only informative, but a means of meeting your fellow delegates in a spirit of mutual helpfulness and good fellowship.

A special card will be sent to members of the Section, giving full details in regard to the luncheon conferences, subjects to be discussed, etc., and members will greatly assist in insuring the success of this feature by filling out this card and returning it promptly to the Secretary, H. W. Hartman, Association Headquarters, 420 Lexington Avenue, New York, N. Y.

A number of manufacturers of office labor-saving devices are planning to exhibit the latest developments in their equipment in connection with the Conference. These exhibits have always proven of great interest to the attending delegates, and members will be well repaid by laying their plans to visit these exhibits as often as possible during the Conference.

The program has been planned not only to bring up subjects of interest to all members of the Section, but ample time has been provided for members to express their own views on the subjects presented. A number of the items such as the presentation by C. J. Fue on "What Would You Do?" are particularly designed to bring out the viewpoints of the attending delegates on problems of general interest to the Section. It is hoped that the members will freely avail themselves of the opportunities thus afforded them.

Make your hotel reservations promptly as this will not only insure you satisfactory accommodations, but will assist those in charge of the Conference in making adequate preparation for the meetings.

The tentative program follows:

THURSDAY—APRIL 23

Registration—9:00 A.M. to 10:00 A.M.
Entrance to Ball Room—Third Floor

Morning Session—10:00 A.M.

Opening Address
Chairman, J. I. BLANCHFIELD

Address of Welcome
GEO. F. MITCHELL,
President, The Peoples Gas Light & Coke Co., Chicago, Ill.

Some Recent Trends in Gas Rate Structures
PAUL RYAN,
Statistician, A. G. A. Headquarters

The Therm Basis of Billing
FRANK L. GRIFFITH,
The Peoples Gas Light & Coke Co., Chicago, Ill.

General Educational Plans for Gas Company Office Employees
GEO. B. WEBBER,
Public Service Electric & Gas Co., Newark, N. J.

THURSDAY—APRIL 23

Afternoon Session—2:00 P.M.

CUSTOMER RELATIONS

Introductory Remarks
LOUIS STOECKER,
Chairman, Customer Relations Group, Accounting Section

The Customer's Counsel within the Company
R. F. BONSALL,
Consolidated Gas Electric Light & Power Co., Baltimore, Md.

Telling the Customer the Story of "Change-Over" to Natural Gas
PAUL RENSHAW,
Memphis Power & Light Co., Memphis, Tenn.

Initial and Other Customer Contacts
B. S. WATSON,
H. L. Doherty & Co., New York, N. Y.

A. G. A. Course in Employee Customer Relations
DR. H. R. HALSEY,
J. David Houser Associates, New York, N. Y.

FRIDAY—APRIL 24

Morning Session—10:00 A.M.

Report: "Something for Everybody"
M. E. BROWN,
The Brooklyn Union Gas Co., Brooklyn, N. Y.
(Informal report of Round Table Discussions of Accounting subjects.)

Report: "What Would You Do?"
C. J. FUE,
The Brooklyn Union Gas Co., Brooklyn, N. Y.
(A Discussion of General Accounting Problems.)

Motion Picture: "The Story of Natural Gas"
E. B. NUTT,
Chairman, Committee on Natural Gas Representation, Pittsburgh, Pa.

FRIDAY—APRIL 24

Afternoon Session—2:00 P.M.

Report: Insurance Committee
T. H. PRENDERGAST,
Chairman, Long Island Lighting Co., New York, N. Y.

Progress Report: Coding of Materials, Supplies, and Merchandise
D. H. MITCHELL,
Chairman, Northern Indiana Public Service Co., Hammond, Ind.

Progress Report: Standard Departmental Financial and Cost Statements
H. A. EHRMANN,
Chairman, Midland United Co., Chicago, Ill.

The Application of Retail Inventory Methods to Public Utility Merchandise Accounting
JAMES E. KANE,
Consolidated Gas Electric Light & Power Co., Baltimore, Md.

Summarizing the Conference
W. A. SAUER,
Vice-president, Midland United Co., Chicago, Ill.

Moves to Pittsburgh

E. A. Clark, formerly connected with the Oklahoma Natural Gas Corp., of Tulsa, Okla., and vice-president of the Charleston group of the Columbia Gas & Electric Corp., has been transferred to Pittsburgh, Pa., where he will become vice-president of the Pittsburgh group of Columbia Gas & Electric Corp., with offices in the Union Trust Building.

True V. Whittiers, superintendent of power for several years of the Blackstone Valley Gas & Electric Company, has joined the Stone & Webster Engineering Corporation, of Boston, to supervise the opening of the new plant of the Louisiana Steam Products Co., at Baton Rouge, La.

Technical Section

R. G. GRISWOLD, Chairman H. W. HARTMAN, Secretary K. H. CREE, Asst. Secretary I. K. PECK, Vice-Chairman

Expect Large Attendance at Distribution Conference

THE Annual Conference of the Distribution Committee, to be held in Cincinnati on April 8, 9 and 10, is planned to be the largest and best conference yet assembled. Many interesting speakers have accepted invitations to speak at this year's meeting, and the subjects selected are not only important to distribution men, but to all engineers engaged in public utility operation.

Programs for the conference were mailed some time ago and from the number of reservations already received at Starrett's Netherland Plaza, where the Conference will assemble a large group will be in attendance.

The first session scheduled for 10 o'clock, Wednesday morning, April 8, promises to be an outstanding one. George Wehrle will present a paper on the "Changeover from Manufactured to Natural Gas." Many new facts are being presented on this problem, and a full and lively discussion of the subject is anticipated. This paper by Mr. Wehrle will cover the "changeover" problems from the time the gas is received at the city until the time it is utilized in the consumer's appliance.

The Pipe Joints Committee of the Distribution Committee will report not only on the developments of the research work being carried on at the American Gas Association's Testing Laboratory, but the work being conducted in conjunction with the Cast Iron Pipe Research Association. This later presentation will refer to the various types of mechanical joints tested and also the methods of testing being used.

A paper on "Arc Welding of Steel Pipe," by H. C. Price, will bring to light many new developments in welding with respect to long-distance transmission lines.

There also will be many interesting papers on pipe coatings and corrosion, both from the standpoint of the work being carried on at the Bureau of Standards at Washington and individual company research.

There will be an evening session at this year's conference on the second day, April 9 at 8 p.m. This is a new idea for the conference and a most timely and interesting subject has been chosen. The subject to be covered will be "Distribution Design" and a symposium has been arranged dealing with various distribution systems throughout the country.

C. S. Goldsmith of the Brooklyn Union Gas Company, will be in charge of the symposium, and will give a paper on "The Application of High and Low Pressures to Various Distribution Systems." Mr. Goldsmith has done considerable work on distribution design, and he has plenty of new ideas to present. Several lantern slides will be used to illustrate the above presentations.

Portable equipment will be covered quite extensively on Friday morning in two papers by W. E. Kemen, of the Milwaukee Gas Light Company, and A. H. Anderson, of the Detroit City Gas Company.

The last session of the conference on Friday, April 10, will be devoted almost entirely to liquefied petroleum gases and the well-known "open forum." The open forum is for the benefit of those who care to bring up subjects not shown on the regular program. A lively discussion is usually had in the open forum meetings and a cordial invitation is extended to all engineers attending the conference to present any subjects which are of most particular interest to their respective companies.

During the second day of the conference this year at 1:30 p.m., there will be available buses provided by the Union Gas and Electric Company for those interested in inspecting various departments of the local gas company. There are many interesting things to see in this respect, especially the unique method of mixing gases. The inspection trip also will include, before returning to the hotel, a sight-seeing trip about the city.

All engineers are invited to attend the conference this year and it is believed that they will more than be repaid for the expense and time involved. The Distribution Committee has expended tremendous effort in arranging the program, which was printed in the March A. G. A. MONTHLY.

Starrett's Netherland Plaza, which is considered one of the finest western hostelries, has reserved a special block of rooms for all delegates.

Largest Submarine Oil Line Constructed on Shore, Then Launched

Line on Way to Sea

OIL from the Kettleman Hills is conveyed to Estero Bay on the Pacific Coast through a seventy-mile pipe line recently completed by the Standard Oil Company of California. This line, which is of 10-in. pipe, is completely welded and carries oil under an initial pressure of 1,000 lbs. per sq.in. to storage tanks on the coast, no booster-stations being used.

Since a deep water harbor is not available at this point, a 16-in. submarine pipe line has been constructed to carry the oil from the storage tanks on shore out to the tanker anchorage 3,000 ft. at sea. At this point the oil is loaded for transport to the refineries by means of a hose attached to the seaward end of the pipe and connected to a buoy by a chain. This submarine line, in order to assure freedom from leaks, was entirely welded by the oxy-acetylene process, the standard open vee butt weld being used without straps or any reinforcements.

One of the most interesting features of this line is that it was entirely constructed on shore, a narrow-gauge railroad extending 3,000 ft. inland in a straight line on a 2 per cent grade, having been constructed especially for the purpose. All welding was done at the inland end of the track, and as fast as lengths of pipe were added to the line at this point it was moved forward toward the shore on trucks running on the narrow-gauge tracks. The illustration shows the completed portion of the line on its way toward the sea. When completed the end of the line was capped, equipped with a sled and towing bridle and pulled out to sea by means of a tug.

Natural Gas Department

H. C. COOPER, Chairman E. J. STEPHANY, Secretary H. L. MONTGOMERY, Vice-Chairman

Southwestern Measurement Course Shows Steady Growth

E. J. STEPHANY, secretary of the Natural Gas Department of the American Gas Association, will deliver an address at the opening session of the eighth annual Southwestern Gas Measurement Short Course to be held April 21, 22 and 23 at the University of Oklahoma, Norman, Okla. Since the inception of the course in 1924, the A. G. A. has given the meter school its active cooperation and endorsement.

From 60 at the first meter school to 450 at the seventh, attendance has steadily increased, indicating the growing importance of this phase of practical education for gas men and the interest shown by measurement men from all parts of the country. At last year's school representatives from 20 states and two foreign countries were present and the average attendance in classes was 95 per cent of the men registered.

The school is conducted as a combination of a few general meetings with technical papers and discussions, and a large number of small classes on particular subjects led by men experienced in the industry, where the personal experiences of everyone in the group are compared. Other classes are held on individual pieces of equipment and are led by special factory service men furnished by equipment companies having exhibits at the school. The course is conducted by the university's School of Engineering and is sponsored by the A. G. A., the Natural Gasoline Association, the Oklahoma Utilities Association and the Oklahoma Corporation Commission.

Any person interested in measurement and regulation of gas may attend the course on payment of a registration fee of $3, which includes a ticket to the annual banquet. Arrangements can be made through the House Committee for rooms in private residences in Norman so that expenses may be kept to a minimum.

C. B. Day, Consolidated Gas Utilities Co., Blackwell, Okla., is chairman of the general committee in charge of arrangements. W. H. Carson, professor of mechanical engineering at the Oklahoma University, is active director of the short course and chairman of the banquet and entertainment committee. Other committee chairmen are as follows: B. L. Maulsby, Oklahoma Natural Gas Corp., Tulsa, program chairman; W. R. McLaughlin, Arkansas Natural Gas Corp., Shreveport, La., committee for the study of practical methods; E. F. McKay, Oklahoma Utilities Association, Oklahoma City, registration committee; E. W. Rowland, The Empire Companies, Bartlesville, Okla., publications committee, and E. E. Stovall, Lone Star Gas Co., Dallas, Tex., exhibits committee.

Also serving on committees are R. H. Lussky, Oklahoma State Corporation Commission; R. D. Turner, Skelly Oil Co.; A. J. Kerry, Midwest Equitable Meters Co., Tulsa; G. P. Bunn, Phillips Petroleum Co., Bartlesville; D. C. Williams, Kay County Gas Co., Ponca City, Okla.; Eugene Metz, American Meter Co., Kansas City, Mo.; F. C. Walters, Panhandle Eastern Pipe Line Co., Kansas City; L. G. Rheinberger, Sinclair Oil and Gas Co., Tulsa; Ray G. Miller, secretary of the Natural Gasoline Association. Ex-officio members are E. A. Clark, Columbia Gas and Electric Co., Pittsburgh, Pa.; F. D. Franks, Cities Service Co., Bartlesville, and D. A. Sillers, Lone Star Gas Co., Dallas.

Seven cash prizes will be awarded for the best reports on "What I Learned at the Meter School," by officials in charge of the Short Course. A first prize of $15, a second of $10 and five $5 prizes will be given.

Officials of companies, heads of departments and technical experts will be ineligible, the prizes being designed to stimulate interest in the school among metermen, and to encourage such reports being made to executives sending their men to the school.

Manufacturers who will have exhibits at the University during the course are as follows: Sprague Meter Co., Pittsburgh Equitable Meter Co., The Bristol Co., the Chaplin-Fulton Manufacturing Co., the Foxboro Co., Metric Metal Works of the American Meter Co., the McEwen Regulator Co., McGaughy Integrator Co., Robinson Orifice Fitting Co., Taylor Instrument Co. and the Westcott and Greis, Inc.

These companies will exhibit their products along with cut-out models for demonstrations. Experienced factory men will give demonstrations of adjustments and handling, and answer questions.

Announcement

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Manufacturers' Section

E. S. DICKEY, Chairman C. W. BERGHORN, Secretary DAVID F. KAHN, Vice-Chairman W. E. STEINWEDELL, Vice-Chairman

Exhibit Space at A. G. A. Convention in Strong Demand

SEVENTY per cent of available space in the exhibit which will be staged in connection with the thirteenth annual convention of the American Gas Association, at Atlantic City, N. J., October 12-16, was reported reserved on March 15 by C. W. Berghorn, director of the exhibit. Reservations were first received on March 2.

Exhibitors who have made reservations and been assigned space are as follows:

A-B Stove Company
Adams Bros. Mfg. Co., Inc.
Addressograph Co.
Air Reduction Sales Co.
Alpha-Lux Co., Inc.
American Cast Iron Pipe Co.
American Gas Furnace Co.
American Gas Journal
American Gas Products Corp.
American Heater Corp.
American Lava Corp.
American Meter Co.
  Griffin & Co., John J.
  Helme & McIlhenny
  Maryland Meter Works
  McDonald & Co., D.
  Metric Metal Works
  Pacific Meter Works
  Tufts Meter Works, Nathaniel
American Radiator Co.
American Stove Co.
  Clark & Co. Div., Geo. M.
  Direct Action Stove Co. Div.
  New Process Stove Co. Div.
  Quick Meal Stove Co. Div.
  Reliable Stove Co. Div.
American Thermometer Co.
Associated Gas & Electric System
Autogas Corp.
Automatic Gas Steam Radiator Co.

Bailey Meter Co.
Barber Gas Burner Co.
Bartlett Hayward Co.
Behringer Co., Edward A.
Blodgett Co., G. S.
Bryant Heater & Mfg. Co.
Burroughs Adding Machine Co.

Carrier-Lyle Corp.
Central Foundry Co.
Chambers Mfg. Co.
Chaplin-Fulton Mfg. Co.
Chapman Valve Mfg. Co.
Chicago Bridge & Iron Works
Cleveland Co-Operative Stove Co.
Cleveland Heater Co.
Cleveland Trencher Co.
Clow & Sons, James B.
Crane Co.
Cribben & Sexton Co.
Cruse Kemper Co.
Cutler-Hammer, Inc.

Davis Emergency Equipment Co., Inc.
Dearborn Chemical Co.
Detroit-Michigan Stove Co.
Dresser Mfg. Co., S. R.
Dun-Rite Clock Device Co.

Economy Governor Co.
Electrolux Refrigerator Sales, Inc.
Elliott Addressing Machine Co.
Estate Stove Co.
Everhot Heater Co.

Faraday Refrigerator Corp.
Felt & Tarrant
Floyd-Wells Co.
Fox Furnace Co.
Foxboro Co., Inc.

Gas & Electric Heater Co.
Gas Machinery Co.
Gas Purifying Materials Co.
General Ceramics Co.
General Gas Light Co.
Giant Mfg. Co.
Gifford-Wood Co.
Glenwood Range Co.
Groble Gas Regulator Co.
Guardian Gas Appliance Co.

Harper-Wyman Mfg. Co.
Hoffman Heater Co.
Homestead Heater Co.
Hotstream Heater Co.

Improved Equipment-Russell Engineering Corp.
Inertol Co.
International Business Machines Corp.
Isbell-Porter Co.

Johns-Manville Corp.

Kelly, Inc., John G.
Kernit Incinerator Co.
Kompak Co.
Koppers Construction Co.

Lambert Meter Co.
Lamneck Co., W. E.
Lattimer Stevens Co.
Lavino & Co., E. J.
Lawson Mfg. Co.
Linde Air Products Co.
Littleford Bros.
Lovekin Water Heater Co.

Majestic Mfg. Co.
McWane Cast Iron Pipe Co.
Mears-Kane-Ofeldt, Inc.
Merco Nordstrom Valve Co.
Mettler Co., Lee B.
Milwaukee Gas Specialty Co.
Mine Safety Appliances Co.
Minneapolis-Honeywell Regulator Co.
Mitchell Specialty Co.
Mohawk Asphalt Heater Co.
Moore Brothers Co.

Mueller Co.
Mueller Furnace Co., L. J.
Mulcare Engineering Co.

National Tube Co.

Ohio Foundry & Mfg. Co.

Partlow Corp.
Patrol Valve Co.
Peerless Heater Co.
Peerless Mfg. Co.
Pennsylvania Furnace & Iron Co.
Perco-Steril Machine Corp.
Permutit Company
Philfuels Co.
Pittsburgh Coal Co.
Pittsburgh Equitable Meter Co.
Pittsburgh Incinerator Co.
Pittsburg Water Heater Co.

Remington Rand, Inc.
Republic Steel Corp.
Reynolds Gas Regulator Co.
Robbins Publishing Co.
Roberts & Mander Stove Co.
Roberts Brass Mfg. Co.
Roberts-Gordon Appliance Corp.
Robertshaw Thermostat Co.
Roper Corp., Geo. D.
Rudy Furnace Co.
Ruud Manufacturing Co.

Safety Gas Main Stopper Co.
Sands Mfg. Co.
Savory, Inc.
Selas Co.
Semet-Solvay Engineering Corp.
Simplex Gas Products Co.
Slattery & Bro., Inc., J. B.
Smith Corp., A. O.
Smith Mfg. Co., A. P.
Spencer Thermostat Co.
Sprague Meter Co.
Stacey Engineering Co.
  Stacey Bros. Gas Construction Co.
  Roots-Connersville-Wilbraham Div.
Stacey Mfg. Co.
Standard Gas Equipment Corp.
Superior Meter Co.
Surface Combustion Corp.

Tappan Stove Co.

Underwood-Elliott Fisher Co.
United Engineers & Constructors, Inc.
United States Pipe & Foundry Co.
Universal Sand Equipment Co.

Wailes Dove-Hermiston Corp.
Walker & Pratt Mfg. Co.
Welsbach Co.
Western Gas Construction Co.
Wilcolator Co.
Wood & Co., R. D.

Youngstown Pressed Steel Co.
Youngstown Steel & Tube Co.

Philip O. Deitsch Joins Manufacturers' Section

PHILIP O. DEITSCH has joined the headquarters staff of the American Gas Association and will serve under the title of Group Manager, Manufacturers' Section. He will be engaged principally in organization and carrying out of group activities in the Manufacturers' Section of the Association.

Mr. Deitsch came to the A. G. A. from the Common Brick Manufacturers' Association of America, Philadelphia, Penna., where he had served for about five years as secretary-manager.

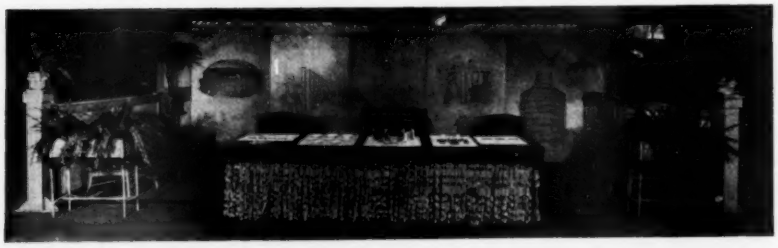
P. O. Deitsch

The new staff member is a native of Ohio, having been born in Cincinnati. He received his early education in that city and Cleveland. His later studies were interrupted by military service. He attained the rank of captain at the close of the World War.

Returning to Cleveland, Mr. Deitsch became associated with the H. W. Johns-Manville Company, and later was named secretary-manager of the Cleveland Retail Tire Dealers' Association. Afterward, he organized and became manager of the National Tire Dealers' Association, giving up that position to join the National Better Business Bureau, in New York, where he organized the better trade relations department. After this he joined the Brick Manufacturers' Association and afterward was selected for the office of secretary-manager of the Common Brick Association.

Mr. Deitsch brings to the A. G. A. a total of twelve years' trade association experience.

Industrial Gas in the Ceramic Industry



A. G. A. Exhibit at Ceramic Show

THE thirty-third annual meeting and show of the American Ceramic Society, which was held at the Cleveland Public Auditorium, Cleveland, O., in February, proved a great success in point of attendance, exhibits, and papers read.

The American Gas Association had an attractively-furnished booth, featuring specimens of glazed work done in a gas-fired furnace by the Research Department at Rutgers University. Also, pictures were shown of all kinds of large and small gas-fired kilns, glass tanks, rotary gas smelters, enameling furnaces and continuous kilns which aroused considerable interest from those associated with the ceramic industry and gas men from different parts of the country.

Arthur P. Watts, of the Ceramic Research Department, Rutgers University, New Brunswick, New Jersey, read a paper before the Ceramic Congress on the firing of glazed white ware in open-chamber gas furnaces, which was well received, and by the enthusiasm shown by the listeners, it should prove helpful to the gas companies in obtaining more business from the ceramic industry.

The Committee on Display and Contact with National Industrial Organizations consists of L. B. Crossman, J. J. Digman, J. C. Shank, A. J. Huston, R. H. Staniford and L. E. Wagner.

Mr. Shank, of the East Ohio Gas Company in Cleveland, had charge of the booth and arrangements, and with the assistance of C. W. Berghorn, secretary of the Industrial Gas Section, Mr. Watts, and other men from the Industrial Department of the East Ohio Gas Company, there was someone in attendance at the booth at all times, and the contacts with the hundreds of men from the ceramic industry throughout the country should prove valuable.

Kit Aids Ad Plans

Surface Combustion Corporation, Toledo, Ohio, has issued "The S.C. Ad-Kit" which represents a complete program of sales and advertising plans for merchandising Janitrol and Columbus Gas-Fired Furnaces. Also a handbook on warm air gas-fired house heating has been prepared. It provides assistance in estimating jobs and in preparing warm air heating layouts. Both the Ad-Kit and the Handbook may be had by writing the manufacturer.

Peninsular Catalog

The Peninsular Stove Company, Detroit, Michigan, has issued a catalog in colors on its new premier line. In this catalog is shown the complete line of console type low compact models all porcelain finished.

New Johnson Unit

The Johnson Gas Appliance Co., Cedar Rapids, Iowa, is producing the Johnson Automatic Gas Heating Unit for converting any types of hot air, hot water or steam heating plants to gas-fired furnaces, both in the round and rectangular types of heating plants.

Chambers Merchandising Program

The Chambers Manufacturing Company of Shelbyville, Indiana, has issued a new merchandising program book, containing sales and advertising plans for 1931 for the merchandising of Chambers Automatic Gas Ranges. A copy may be had by writing to the manufacturer.

New Sales Manual

The Ruud Manufacturing Company, Pittsburgh, Pa., has issued a sales manual for gas company salesmen entitled, "Know Your Business," and is supplied without charge by the manufacturer.

Seven Win Promotions in Consolidated Gas

W. S. WALKER has been named assistant engineer of Utilization of the Consolidated Gas Company of New York, according to an announcement made by Oscar H. Fogg, vice-president in charge of commercial relations. Mr. Walker will have charge of the Department, taking the position left vacant in January by the death of C. Y. McGown.

Mr. Fogg's announcement also called attention to the creation of several new positions in the Customers' Service Department of the company and the promotion of six other Consolidated men in New York.

William C. Oeckler, formerly superintendent of the Second Avenue Shop, has been made assistant general superintendent of the customers' service department, in charge of shops.

C. E. Muehlberg, who has been manager of the industrial division of the sales department, has been promoted to assistant general superintendent of the customers' service department, in charge of appliance maintenance divisions.

F. E. Vilas and A. V. Hay have been appointed, respectively, superintendent of domestic appliance maintenance division and superintendent of commercial appliance maintenance division. Mr. Vilas was formerly acting superintendent of the refrigeration installation and maintenance department, and Mr. Hay was contact engineer in the industrial inspection and maintenance division.

J. A. Malone has been promoted to manager of the industrial division, and Paul Dorchester has been made assistant manager. Mr. Malone was formerly assistant manager, under Mr. Muehlberg, and Mr. Dorchester was a sales engineer in the division.

W. S. Walker

Mr. Walker joined the Consolidated Gas Company as a cadet engineer shortly after graduation from the University of Virginia in 1926 with the degree of mechanical engineer. He was, in turn, assigned to the manufacturing department, the distribution department, the construction department, and the utilization department. In the latter department he was engaged in industrial installation and maintenance work and in testing of appliances, the major part of the assignment being in connection with refrigeration, both in the field and in the laboratory. In September, 1929, he was appointed acting assistant superintendent of the refrigeration installation and maintenance department, which position he held until his recent promotion.

Mr. Walker has several inventions to his credit, including the water strainer adopted by the Electrolux refrigerator, a new type of thermostat for refrigerators, the Ensign-Reynolds gas filter for small appliances and refrigerators, and the Ensign-Reynolds bending and flaring tool.

W. C. Oeckler

Mr. Oeckler started to work for the Consolidated Gas Company as an indexer in 1906. He became, in turn, chief indexer, junior clerk, and pay roll clerk. He then served as second assistant superintendent in several of the company's shops, and in 1913 was appointed assistant superintendent of the Second Avenue Shop. In May, 1921, he was made acting superintendent of this shop, and in December of the same year was promoted to superintendent.

C. E. Muehlberg

Mr. Muehlberg attended Washington University in St. Louis, Mo., and then entered the Missouri School of Mines from which he graduated in 1917, with the degree of Bachelor of Science in mechanical engineering. He served in the army during the World War, and in 1920 entered the employ of the Public Service Company of Colorado, as works engineer. In 1922 he was made manager of industrial gas sales. In September, 1927, he joined the Consolidated Gas Company as assistant manager of the industrial division, and in March, 1928, he was made manager.

F. E. Vilas

Mr. Vilas graduated from Columbia University in 1925, and joined the Linde Air Products Plant of the Union Carbide Co., at Buffalo, N. Y., as a testing engineer engaged in low temperature work, including the making of liquid air and the purification of gases used in the manufacture of helium. In September, 1927, he joined the Consolidated Gas Company of New York as engineer's assistant in the utilization department. His duties included the development of auxiliary equipment for the gas refrigerator, and the handling of some service work on this appliance. In April, 1929, he was appointed assistant superintendent of the refrigeration division, and when this division was changed to the refrigeration installation and maintenance department in October, 1929, he was named acting superintendent. Mr. Vilas has contributed many articles to the technical and engineering magazines on refrigeration and allied subjects.

A. V. Hay

Mr. Hay graduated from Stevens Institute of Technology in 1925, with the degree of Mechanical Engineer. He joined the Consolidated Gas Company shortly after graduation, as a test engineer in the utilization laboratory, engaged in testing house heating, hotel and restaurant, and industrial appliances. In December, 1927, he was promoted to service engineer in the Utilization Department, and in February, 1929, he became the house heating contact engineer, in which capacity he approved house heating and water heating proposals prior to sale. He also was engaged in training new house heating salesmen. In November, 1930, he became a contact engineer for the Industrial Inspection and Maintenance Division.

J. A. Malone

Mr. Malone graduated from the Stevens Institute of Technology in 1912, with the degree of mechanical engineer. His early business experience was gained with the Standard Oil Company of New York, as engineering assistant stationed in India. In 1916 he became affiliated with American International Corporation subsidiaries as assistant sales manager of the Paris office. In 1920 he entered the wholesale dairy industry, and in 1924 became sales manager of a concern selling industrial and domestic oil burning equipment in East Orange, N. J. He joined the Consolidated Gas Company in April, 1930, as a sales engineer in the house heating and water heating division, specializing on large volume water heating. He was transferred to the industrial division in December, 1930, as assistant manager.

P. Dorchester

Mr. Dorchester is a graduate of Boston University, and also of Ohio State University, with a degree in mechanical engineering. His business training embraces three years with the Logan National Gas and Fuel Co., at Columbus, Ohio, three years as assistant superintendent of the industrial division of the Brooklyn Union Gas Company, and eight years with the Surface Combustion Company as Eastern sales representative. In March, 1927, he joined the Consolidated Gas Company as sales engineer.

Are You Wearing the A. G. A. Pin?

These small emblems, designed in blue and gold, are unusually attractive and durable. Price $2.

MAIL THE COUPON

AMERICAN GAS ASSOCIATION,
420 Lexington Avenue,
New York, N. Y.

Here's my check for $2. Please send me an A. G. A. Membership Pin.

Name .....

Address .....

City .....

Woman Among Those Receiving McCarter Medals

Mrs. Grace Whitten

ANOTHER woman has been awarded a McCarter Medal for life saving by use of the Schafer prone pressure method of resuscitation. This time it is Mrs. Grace Whitten, a clerk employed by the Public Service Electric & Gas Co., Jersey City, N. J., who saved the life of Harry Boorstein who had been overcome by gas at his home in that city.

The presentation of the medal was made by A. J. VanBrunt, director of safety education. Through the cries of a neighbor, Mrs. Whitten discovered the unconscious condition of Mr. Boorstein and, by working over him herself and directing others in the use of the prone pressure method, succeeded in reviving him.

W. A. Beam

W. A. Beam, chief engineer of the Haskell compressor station of the Oklahoma Natural Gas Corporation, has been awarded the McCarter Medal of the American Gas Association for saving the life of a twelve-months'-old baby girl by his timely use of artificial respiration.

The child, Mary Evelyn Dipboye, had been overcome by gas fumes in the room where she was sleeping. The Dipboye home being near the compressor station, Mr. Beam heard the screams of the mother when she entered the room and found the baby unconscious. By his untiring application of artificial respiration, Mr. Beam, who had been instructed in the Schafer prone pressure method only about three weeks before, finally succeeded in restoring the child's breathing. The occurrence was on January 12, 1929.

Formal presentation of the medal to Mr. Beam was made at the annual banquet of the Oklahoma Utilities Association at Oklahoma City on March 11.

Following is an extract from resolutions of the Oklahoma Association:

"We feel that the convention should congratulate Mr. W. A. Beam, who has upheld the tradition of true service by being prepared for the supreme opportunity for service which can come to any person, and thereby has brought to Oklahoma for the first time a McCarter Medal for the saving of human life. We would congratulate also the Oklahoma Natural Gas Corporation which shared in this distinction."

R. G. Haines

Roland Gordon Haines, line foreman of the Public Service Electric and Gas Co., at Trenton, N. J., also has been awarded a McCarter Medal for saving the life of Miss Cora Peiffer, of that City, who had inhaled gas. She was revived by the Schafer prone pressure method.

E. Lussenden

Erwin Lussenden, a mechanic in the employ of the Grand Rapids Gas Light Company, Grand Rapids, Mich., was presented with a McCarter Medal for saving the life of Roy Barnes, a helper, who had been overcome while assisting in refilling the oil supply in a governor pit lubrication unit.

Summer Sales Conference

THE Summer Sales Conference of the New England Gas Association will take place at the Hotel Griswold, Eastern Point, New London, Conn., June 26 and 27.

Gas Appliance and Equipment Developments

Combustible Gas Indicator

There is now available through the Davis Emergency Equipment Company and its subsidiary, Bullard-Davis, Inc., of Delaware, the J-W Combustible Gas Indicator for determining the combustibility or explosibility of gas air mixtures. This J-W Indicator was developed in the Research Department of the Standard Oil Company of California.

Bulletin No. 1105 describing this J-W Indicator may be had by writing to the Davis Emergency Equipment Company, 67 Wall Street, New York City.

Home Appliance

The Duo-Tor Manufacturing Company, 24 South Canal Street, Dayton, Ohio, is manufacturing a new home appliance which furnishes hot water and burns garbage and refuse. Complete information and literature upon application.

In addition to the Dayton office, the Duo-Tor Manufacturing Company is represented by C. N. Winter, Hohokus, New Jersey; W. M. Shaw, 6510 Brighton Rd., Ben Avon, Pa.; C. K. Cairns, 710 Union Central Building, Cincinnati, Ohio.

Johns-Manville Pamphlet

Johns-Manville Sales Corporation, 292 Madison Avenue, New York, N. Y., recently issued an illustrated pamphlet on protection of pipe lines against corrosion, explaining the three modern machine methods of applying asbestos felt at the mill, in the yard, and in the field, including specifications for various soil conditions.

Automatic Proportionator

A new catalogue describing and illustrating the Mixitt, an automatic proportionator, has been published by the Max B. Miller & Co., Inc., 501 Fifth Avenue, New York. This machine has had application in continuous blending and continuous chemical treatment processes.

Adds Furnace to Line

The Western Steel Products Company, of Duluth, Minnesota, has added to its list of heating equipment a gas furnace which is designed to burn either manufactured or natural gas. A catalog is ready for distribution.

Recent Contracts

Among recent contracts awarded to United Engineers & Constructors, Inc., Philadelphia, are those of the Jersey Central Power & Light Company, Asbury Park, N. J., to furnish, deliver and erect at Long Branch, N. J., one 7 ft. 6 in. U. G. I. vertical waste heat boiler. For the Connecticut Light & Power Company of Waterbury, Conn., to furnish, deliver and install at its works in Norwalk, Conn., two 21 ft. x 16 ft. 4 in. purifier boxes, including foundations. For the Allentown-Bethlehem Gas Company, Allentown, Pa., approximately 11,000 ft. of 4 in. welded steel main between Emaus and Vera Cruz, Pa., 6400 ft. of 6 in., 20,800 ft. of 4 in. and 13,000 ft. of 2 in. steel main between Emaus and Macungie, Pa.; 21,700 ft. of 8 in., 1000 ft. of 4 in. and 2000 ft. of 2 in. steel main between Allentown and Wesconsville, Pa. For the Consumers Gas Company of Reading, Pa., 93,100 ft. of 12 in. steel main with Dresser joints, in Reading, Pa., also 13,160 ft. of 8 in. welded steel main and 416 ft. of 2 in. galvanized steel screwed main between Womelsdorf and Stouchburg, Pa.

Contributions by manufacturers of gas appliances and equipment to this department will be welcomed by The A. G. A. Monthly. On account of space limitations, all announcements of new products, improvements, etc., should be limited to about 100 words. No attempt will be made to describe each product or give details of construction. For such details address the manufacturer direct. Where justified, photographs will be used to illustrate these brief items. All contributions to this department should be addressed to C. W. Berghorn, Secretary, Manufacturer's Section, American Gas Association, 420 Lexington Ave., New York, N. Y.

Dryer Merchandising Campaign

An intensive merchandising plan has been announced by The W. E. Lamneck Company, Columbus, Ohio, manufacturers of the Lamneck Laundry Dryer. It represents the result of six years' experience in studying and developing the dryer market, combined with testing and analysing a wide variety of selling campaigns.

Improved Automatic Water Heater

The EverHot Heater Company presents a 1931 Model EverHot Automatic Water Heater. Details of it can be secured from the manufacturer, EverHot Heater Company, Detroit, Michigan.

Moncrief Produces Furnace

The Moncrief Gas Furnace is the latest item of production of The Henry Furnace & Foundry Co., Cleveland, O. This furnace is made in three sizes with complete electric blower equipment. The Moncrief Gas Furnace has been tested and approved by the Laboratories of the American Gas Association.

Honeywell Gets Time-O-Stat

Minneapolis-Honeywell Regulator Company has acquired all the assets and business of the Time-O-Stat Controls Corp., the latter organization to be operated as a division of the Minneapolis Company. The Minneapolis-Honeywell line will now comprise the Time-O-Stat gas hot water heater control, mercury tube switch devices, refrigeration controls, and electric sign flashers, in addition to its former line of damper regulators, controls for oil or gas burners, unit heater and sectional controls, stoker controls, individual radiator controls, and motorized valves and controllers for industrial processes.

Olsen President of Fox

Following a meeting of the board of directors, C. A. Olsen succeeded W. H. Hill as president of The Fox Furnace Company, Elyria, Ohio. Mr. Hill has been made chairman of the board and will, in the future, make his headquarters in New York City. The Fox Furnace Company is a division of the American Radiator & Standard Sanitary Corporation.

Ohio Fuel Gas Installs Addressographs

Ohio Fuel Gas Co., Columbus, O., has installed a battery of five Class 3700 automatic Addressographs for printing and addressing its bills. The Class 3700 is a new Addressograph product that prints and addresses over 2,000 business forms in quadruplicate per hour, and an even greater number of single, duplicate and triplicate forms per hour. In one operation, form is is printed, front and back, from a roll of paper—binding holes punched—stub sections perforated—form cut to exact size—addressed through a ribbon from metal records—and stacked in order desired. Changeable or auxiliary data imprinted in color.

Saturation Controllers

The Foxboro Company, Foxboro, Mass., has developed an instrument for automatically controlling the saturation of natural gas being supplied to a distributing system which has been converted from manufactured gas. The instrument is equipped with an automatic control point reset which maintains constant saturation, regardless of day, night, and seasonal variations in line temperatures. This is done without the necessity of manual reset for saturation point.

Spiral Welded Pipe

The American Rolling Mill Company, Middletown, Ohio, has developed a new product—spiral welded pipe. It is manufactured in jointless lengths up to forty feet, from six to twenty-four inches in diameter, and any wall thickness from 12 gage to 3/8 in.

(Further Development Items on Page 178)

Hints For Greater Comfort In Your New Home

Developing the Domestic Load

WIDE-AWAKE gas executives are paying more and more attention to development of the domestic load through promotion of completely gas-equipped homes. Only a few such homes will give a decidedly appreciable increase in gas sales. Ten to fifteen times more gas is used than in homes which boast only of a gas range.

Here is a booklet which has been especially designed to inform the home builder of the many services which gas performs and performs well. At the same time specific appliance information is given.

Prices:

First 100—
25 cents each

All over 100—
20 cents each

Hints for Greater Comfort in Your New Home

is the name of the book. It is to be presented to the home builder. It is in loose leaf form so that only those appliances need be incorporated which are suitable for the home in question.

Space is provided on the pages referring to the range, water heater, fireplace heater, incinerator, refrigerator, laundry equipment, and house heating equipment, so that various booklets on the particular appliances recommended can be pasted in.

Write for a Sample Copy

AMERICAN GAS ASSOCIATION

420 Lexington Ave., New York, N. Y.

Three Houses to Be Cooled With Gas

(Continued from page 153)

ment for interpreting these processes. In order that as much experience as possible can be gained this summer the Research Committee is projecting its work from the laboratory into the field. Results of this field work will be made available to the gas industry and will serve as a background for sales campaigns, and as a basis for properly servicing equipment.

Dealer Cooperation Plan That Works

(Continued from page 151)

The material for the course includes the American Gas Association Course in Domestic Gas Salesmanship, as well as lectures on company policy and talks of the construction features of the A. G. A. approved appliances which are sold by The Brooklyn Union Gas Company.

These two features add to the definite advances already made by the company in the work of cooperation with the dealer. The more important of these advances follow:

Paying the dealer for leads resulting in sales.

Turning over all connecting work on appliances to the dealer.

Allowing liberal discounts where dealer purchases appliances for resale or otherwise.

Consigning appliances to dealer's floors for display purposes.

Aiding the dealer in window and floor display and advertising.

Modern Gas Service

(Continued from page 150)

If you go in for utilizing assistance in sales on the part of plumbers, dealers, or any other kind of sales organizations, all that is done in this direction strengthens them in their effort in the gas industry. Probably more money is being spent for advertising per year at this time than was spent in the total ten years from 1890 to 1900, but the proportion of our gross revenue expended in this direction is still too small.

We have a business to protect, but much more than that, we have an opportunity to develop a business which will render an even greater service than it is now doing. We must develop its possibilities and make them known.

Gas Appliances Speed Passing of Blue Monday

(Continued from page 149)

a blessing to humanity has been the passing of Blue Monday from the Household, and the time and labor saved thereby."

I give you this because it seems to me to sum up all of the heartaches and backaches and horrors of drudgery that were our lot just a few short years ago. Contrast all that with the joy and comfort and conveniences that surround the use of modern up-to-date appliances and equipment. Who hasn't been impressed with the improvements of the time and temperature

controlled insulated gas ranges of today as compared with those of even ten or fifteen years ago? Of the remarkable reliability of the automatic water heater? Of the absence of dirt and muss but with the retention of the charm and decorativeness of the radiant gas heaters? Or of the comfort and convenience of the gas heated laundry dryers and of the washing machines and ironers? And then we come to that wonder of wonders, the gas refrigerator—the appliance that through the application of heat produces perfect refrigeration, silently and economically.

Romance? Plenty of it. To any other group than this, the story of the rapid advancement of the use of gas for house heating would be much more appropriate, but I cannot resist the temptation to tell you that we have just sold a prominent builder over in Queens 200 gas boilers to be installed in 200 small moderate priced houses. Nor do I think it well to refrain from quoting to you something that H. L. Mencken said recently. This is what he says:

"Of all the great inventions of modern times the one that has given me most comfort and joy is one that is seldom heard of, to wit, the thermostat. I was amazed, some time ago, to hear that it was invented at least a generation ago. I first heard of it during the war, when some kind friend suggested that I throw out the coal furnace that was making steam in my house and put in a gas furnace."

Then, after reciting all of the irksome conditions to which he had been accustomed, he goes on to say:

"The thermostat changed all that, and in an instant. I simply set it at 68°, and then went on about my business. Whenever the temperature in the house went up to 70° it automatically turned off the gas under the furnace in the cellar, and there was an immediate return to 68. And if the mercury, keeping on, dropped to 66°, then the gas went on again, and the temperature was soon 68° once more. It would take the limber, vibrant, air-cooled tongue of a Rabbi Stephen S. Wise, nay, of a William Jennings Bryan, to describe my relief and comfort. I began to feel like a man liberated from the death-house. I was never too hot or too cold. I had no coal to heave, no ashes to sift. My house became so clean that I could wear a shirt five days. I began to feel like work, and rapidly turned out a series of imperishable contributions to the national letters. My temper improved so vastly that my family began to suspect senile changes. Moreover, my cellar became as clean as the rest of the house, and as roomy as a barn. I enlarged my wine-room by 1,000 cubic meters. I put in a cedar closet big enough to hold my immense wardrobe. I added a vault for papers, a carpenter shop, and a praying chamber.

"For all these boons and usufructs I was indebted to the inventor of the thermostat, a simple device but incomparable. I'd print his name here, but unfortunately I forget it. He was one of the great benefactors of humanity. I wouldn't swap him for a dozen Marconis, a regiment of Bells, or a whole army corps of Edisons."

Is it any wonder that with examples of these reactions from representatives of our day and time it is increasingly difficult to keep old and obsolete buildings and apartments tenanted to a profitable degree?

Why do people move from house to house or from apartment to apartment? Someone has listed these general reasons:

1. Because of reduced finances, which is unavoidable.

2. Because of commercial transfer which is beyond the control of the tenant.

3. By far the largest, however, is the independent moving of a tenant to more satisfactory living quarters. This does not necessarily mean moving from a poor section to a good section. It may be simply transferring the household goods across the street to a better equipped apartment and in practically all cases this better equipped apartment has an automatic refrigerator.

There can be no doubt of the truth of this last observation, and, if you will pardon so many quotations, I will tell you what Henry Mandel, builder of the $50,000,000 London Terrace Apartment, The Pershing Square Building, and other skyscraper giants, has to say:

"Moderate rentals for white-collar workers and a check to the flow of population away from Manhattan are urgently needed. The plan is simple. It involves merely modernization on a wide scale of existing buildings which through age or obsolescence or both have become practically valueless. There are thousands which with proper treatment could have long expectations of life although today they are only 50 per cent rented, or even less. They can be modernized at very reasonable expense to be rented closely approximating the $21 a room which Borough President Miller advocates. They would furnish living accommodations for hundreds of thousands.

"Modernizing involves reconstruction of entrance ways into attractive lobbies, through overhauling of elevator system, improvement in electric light connections fixtures, through cleaning and decoration, installation of mechanical refrigeration. In most of these buildings plumbing is a total loss but this too can be restored as a paying investment."

If you look in the February 21 issue of *Real Estate Record and Builders Guide*, you will find in an article written by Freeman Crowell a list of ninety-seven construction features that increase the rentability of apartments. The features are graded "E" for excellent, "G" for fairly good, and "O" for little value. In the list for moderate priced apartments seventy-eight of these features are indicated as excellent, fourteen as good, and only five as of little value. Please note, however, that this list contains such items as:

Soundproof construction, Ultra-violet-ray glass, mechanical ventilation, automatic refrigeration (silent), tub and shower combination, garage in building, self-leveling elevators, automatic door checks, Radio connection in each room, wood burning fireplace, temperature control, rolled screens, incinerator, laundry equipment in basement, provision for pets, roof garden, Solarium, automatic shower mixer, circulating ice water, mixing faucets, landscaped exterior, laundry tub in kitchen, built-in kitchen cabinet, immediate hot water, colorful kitchen, bathroom in tile (color), storage for baby carriages (first floor), gas or oil burners (noiseless), quality of range and oven, covered carriage entrance, rustless hot water lines.

Just think of it—moderate priced apartments for the average class citizen of America having comforts and conveniences that many kings do not possess. I tell you, "not even Solomon in all his glory was arrayed like one of these."

But do you blame them? You can't expect a generation that refused to be awed by an Empire State Building quickly snatching the towering laurels from a Chrysler Building to be satisfied with anything less. How many of us would accept a hotel room without bath, without running water, without a gadget in the door for your clothes to reach the valet without personal contact, without a telephone, and, yes, without a radio? Not many! Then why shouldn't our homes have some of these conveniences? The answer is they should, and, whether we like it or not, the woman usually asks for them and gets them. That means that it is your job and mine to please the feminine side of our clientele. Last October down in Atlantic City at the annual convention of the American Gas Association, Mrs. Christine Frederick, the well known household efficiency and sales consultant, told the gas men of the country something about this feminine customer of ours, and her remarks are just as applicable to you as they are to us. Let me just pick some gems at random—Here is one:

"But I need hardly point out that today 'Mrs. Consumer' is in the buying saddle as never before. The American homemaker purchases from 80 per cent to 90 per cent of all goods for family use, including 48 per cent of hardware and 41 per cent of automobiles. Women buy 34 per cent of men's clothing and, as you may realize, buy 63 per cent of your neckties (without consulting you) leaving men to buy the newspapers, the boxed candy, and some 90 per cent of women's silk hosiery!"

Here is another:

"You, or any industry, must today study sales not from the factory or laboratory toward the consumer—but rather from the consumer back to the laboratory.

"Therefore, I ask that to your notable achievements on the facts of production, you now be willing to flexibly adapt to research and study on consumption—on the psychology, the habits, the problems of Mrs. Consumer. Mrs. Consumer—all women—are more emotional than men; she is more deeply sensitive to and concerned with her surroundings than men; she gets more sat-

isfaction from the objects and the furnishings of her home background; she is continually swayed by something new—by a desire for something different, striking, more colorful—certainly always 'different' from what she previously possessed. I affirm that the one keynote of all women's buying psychology is CHANGE! This explains why she is the heart and soul, the center of the merchandising world. Mrs. Consumer is more influenced by eye-appeal than men. It is, therefore, easier to get her attention—more difficult to hold it. On the contrary, men respond to action-appeals, and what a product does; women are constantly concerned with how it looks. This explains why Mrs. Consumer brought about such rapid changes in design, color, style and insistence on detail in countless lines of products."

I spoke awhile ago about the comforts and conveniences we expect to find in a hotel room and that brings me to an activity of ours that is doing considerable to assist landlords to retain tenants. I refer to our so-called single meter plan. This is not to be confused with any sub-metering activity. A single meter is installed in a building and all of the gas consumed is registered through it and no separate record is kept or charge made to the tenants for gas service as such. In other words, we sell the idea to the landlord to include gas for refrigeration and cooking in with the rent and supply a service to his tenants that is a step nearer to complete hotel service. There is no applying for gas service on the part of the tenant, no meter reading, no bill rendering or collection made from him. The tenant has been relieved of all this, but in turn the landlord has included the cost of this service in the rent the same as he does with the hot water supply or the elevator service. This change—from separate meters for each tenant—to a single meter—can be made easily in most buildings without inconveniencing the tenants. It is working successfully, and is securing and holding the tenants for the landlords.

Out of all this I hope we see and appreciate the problem before us. Properties must be modernized or they will remain idle. If landlords can see the wisdom of securing funds, somehow, to rehabilitate their properties, they will be repaid by having occupied apartments.

It goes without saying that they should change at once all unsafe and unsanitary conditions. Then comes the attention to those elements or features that fall under the category of eye, color, or sex appeal. New, glistening all-enamel ranges, new plumbing fixtures—in colors—and the automatic refrigerator—the gas refrigerator to be exact—will all go a long way toward bringing about the desired results.

Throughout the country there have been many instances of a home that has been modernized solely through the installation of gas refrigerators—and the rentals have been materially increased as a result. I leave to you whether or not the expenditure is justified.

Industrial Gas Salesmanship

A COMBINATION home-study and group-discussion course, designed to give the salesman a detailed grasp of the uses of gas in industry, a systematic procedure for uncovering the prospect's needs, and saving methods for conducting inspection and fact-finding interviews is offered in the American Gas Association Industrial Gas Salesmanship Course.

The course presents a planned, systematic sales procedure and shows how to educate customers to a consideration of fuels in terms of ultimate effect on production. Also, the Course provides facts and methods for meeting claims of competitive fuels.

The seven units of the course are:
Establishing Confidence and Control.
Ascertaining the Prospect's Requirements.
Presenting your Recommendations.
Explaining Technical Processes.
Overcoming Difficulties.
Following Through.
Organizing Field Work.

Price $50.00

FOR FURTHER INFORMATION ADDRESS

Industrial Section

AMERICAN GAS ASSOCIATION
420 Lexington Avenue
New York, N. Y.

Monthly Summary of Gas Company Statistics

FOR MONTH OF JANUARY, 1931

Issued March, 1931, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Statistician

COMPARATIVE STATISTICS OF 152 MANUFACTURED GAS COMPANIES FOR THE MONTH OF JANUARY, 1931

	Month of January		
	1931	*1930*	*Per cent Increase*
Customers	8,767,815	8,751,432	0.2
Gas Sales (MCF)	33,443,728	33,117,621	1.0
Revenue (Dollars)	34,665,992	34,554,508	0.3
Gas Produced and Purchased (MCF)			
Gas Produced			
(a) Water Gas	17,529,012	18,883,205	— 7.2
(b) Retort Coal Gas	2,982,561	2,808,610	6.2
(c) Oil Gas	823,813	1,029,361	—20.0
(d) Coke Oven Gas	4,209,615	4,185,476	0.6
(e) Reformed Oil Still Gas	312,046	167,740	—
(f) Total Gas Produced	25,857,047	27,074,392	— 4.5
Gas Purchased			
(a) Coke Oven Gas	10,056,078	9,959,752	1.0
(b) Oil Still and Natural Gas	354,985	244,534	45.2
(c) Total Gas Purchased	10,411,063	10,204,286	2.0
Total Gas Produced and Purchased	36,268,110	37,278,678	— 2.7

COMPARATIVE STATISTICS OF 156 NATURAL GAS COMPANIES FOR THE MONTH OF JANUARY, 1931

Customers			
Domestic (Including House Heating)	4,221,654	4,193,726	0.7
Commercial	196,827	191,844	2.6
Industrial	14,795	13,529	9.4
Main Line Industrial	3,905	3,279	19.1
Miscellaneous	2,365	1,652	—
Total	4,439,546	4,404,030	0.8
Gas Sales (MCF)			
Domestic (Including House Heating)	38,768,053	38,456,402	0.8
Commercial	5,221,022	5,334,112	— 2.1
Industrial	16,666,325	19,844,986	—16.0
Main Line Industrial	5,636,202	6,703,211	—15.9
Miscellaneous	463,057	838,155	—
Total	66,754,659	71,176,866	— 6.2
Revenue (Dollars)			
Domestic (Including House Heating)	25,206,750	24,909,705	1.2
Commercial	2,528,041	2,563,322	— 1.4
Industrial	3,944,259	4,813,315	—18.1
Main Line Industrial	785,360	911,206	—13.8
Miscellaneous	98,792	187,383	—
Total	32,563,202	33,384,931	— 2.5
Gas Produced and Purchased (MCF)			
Natural Gas Produced	25,387,444	27,534,079	— 7.8
Natural Gas Purchased	83,039,415	92,035,371	— 9.8
Natural Gas Produced and Purchased	108,426,859	119,569,450	— 9.3
Manufactured Gas Produced and Purchased	2,222,583	3,309,090	—
Total Gas Produced and Purchased	110,649,442	122,878,540	—10.0
Company Use and Sales to Other Gas Companies	40,686,718	43,761,153	— 7.0
Net Available for Public Distribution	69,962,724	79,117,387	—11.6

Manufactured Gas Sales Up in January

THE month of January witnessed the first signs of an upturn in the manufactured gas industry, when gas sales registered an increase of 1 per cent over January of the preceding year, according to the Statistical Department of the American Gas Association. This is the first time the industry has reported an increase for any month over the preceding year since April, 1930. Revenues of the 152 reporting companies, comprising about 90 per cent of the manufactured gas industry, aggregated $34,665,992 for the month, as compared with $34,554,508 for January, 1930, an increase of 0.3 per cent.

While natural gas utility sales did not show the same upturn, the decline as compared with the year previous was much less severe than for the preceding months, amounting to only 6 per cent. Revenues of the 156 reporting natural gas utilities, which represent nearly 90 per cent of the public utility distribution of natural gas, amounted to $32,563,202 in January, as compared with $33,384,931 for January a year ago, a decline of only 2.5 per cent.

This generally improved trend was not uniform throughout the country however. In New England sales of manufactured gas rose nearly 7 per cent in January from a year ago, while in the Middle Atlantic States, comprising New Jersey, New York and Pennsylvania, sales were up 2.4 per cent. In the East North Central States, however, including Illinois, Indiana, Michigan, Ohio and Wisconsin, total sales for the month were down 6 per cent from January, 1930. This was the result in large part of a drop of 15 per cent in sales of gas for industrial-commercial purposes, together with abnormally mild weather conditions characterizing this area during the month.

MANUFACTURED GAS—NEW ENGLAND STATES

(Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont)

(Data reported by 37 companies whose sales constitute 85% of the total sales of manufactured gas in the New England States)

	Month of January		
	1931	*1930*	*Per cent Increase*
Customers			
Domestic	1,062,161	1,062,557	0.0
House Heating	6,784	5,813	16.7
Industrial and Commercial	38,052	40,412	— 5.8
Miscellaneous	546	447	—
Total	1,107,543	1,109,229	— 0.2
Gas Sales (MCF)			
Domestic	2,382,021	2,315,759	2.9
House Heating	661,793	522,763	26.6
Industrial and Commercial	595,132	570,004	4.4
Miscellaneous	20,938	22,709	—
Total	3,659,884	3,431,235	6.7
Revenue (Dollars)			
Domestic	3,056,329	2,990,898	2.2
House Heating	532,130	417,930	27.3
Industrial and Commercial	562,728	548,309	2.6
Miscellaneous	16,422	18,247	—
Total	4,167,609	3,975,384	4.8

MANUFACTURED GAS—MIDDLE ATLANTIC STATES

(New Jersey, New York and Pennsylvania)

(Data reported by 34 companies whose sales constitute 92% of the total sales of manufactured gas in the Middle Atlantic States)

Customers	3,946,432	3,905,170	1.1
Gas Sales (MCF)	14,052,626	13,724,849	2.4
Revenue (Dollars)	15,527,421	15,405,499	— 0.8

MANUFACTURED GAS—SOUTH ATLANTIC STATES

(Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina and Virginia)

(Data reported by 16 companies whose sales constitute 76% of the total sales of manufactured gas in the South Atlantic States)

Customers	451,771	449,083	0.6
Gas Sales (MCF)	2,590,012	2,211,246	17.2
Revenue (Dollars)	2,417,870	2,144,238	12.8

Associations Affiliated with A. G. A.

Canadian Gas Association
Pres.—A. T. Leavitt, Hamilton By-Product Coke Ovens, Ltd., Hamilton, Ont.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

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Exec. Sec.—J. N. Cadby, 135 West Wells St., Milwaukee, Wis.

Thirteenth Annual Convention of the American Gas Association
Atlantic City, N. J. - - - October 12-16, 1931

Personnel Service

SERVICES OFFERED

Manufacturer's representative, New York territory, gas water heaters, space heaters or similar lines wanted. **388.**

Gas engineer, superintendent or assistant general manager (45) holding a technical degree, member A.S.C.E., familiar with all phases of the gas industry, including the public and the rate problem, is open for engagement. Applicant is willing to go anywhere his training and experience can be of use. **389.**

Factory representative with manufacturer of gas burning equipment. Ten years' experience in appointing dealers developing territory, etc.; five years' experience in the oil burning industry. Salary and expenses, or commission basis with drawing account. **390.**

Sales Manager or industrial gas engineer for Latin American property. Specialist in commercial and industrial installations, refrigeration, large water heating, large volume cooking. Speaks English and Spanish fluently. Fifteen years' managing personnel of various nationalities. **391.**

Fuel engineer (M.S.) eight years' experience in industrial field, familiar with any kind of fuel and its application, desires position as manager of Industrial Department or responsible position with equipment manufacturer. Good organizer with strong background of diversified industrial research. Married and now employed. **392.**

Manager-Superintendent, experienced in construction and operation of coal gas, water gas, and coke-oven plants. Also familiar with distribution problems. Employed at present by holding company as Assistant District Manager. Graduate engineer with background of practical experience. Best of references. **393.**

Over twenty years' training and experience with one public utility company in all angles of the gas industry; have been constructing and operating **engineer** on plant and distribution work, sales manager, advertising and publicity manager and successful at employee and public relations. **394.**

Operating **Executive,** manufactured and natural gas experience; organization; engineering, sales and rates. Keen on creating new uses to improve volume and load factor of send-out. **395.**

Rate engineer; engineering graduate with accounting training and several years' experience in rate work, covering rates for manufactured, by-product and natural gas service with Public Service Commission. Thoroughly experienced in making budgets, cost analyses, rate studies, designing rates and similar work. **396.**

Engineer-Manager, experienced in all branches of gas operations, construction, production, distribution, high- and low-pressure coal or water gas, management of plant up to 20,000 meters or chain of small plants, available on short notice, good record. **397.**

Gas Engineer, technically educated and having over 20 years' practical experience in the gas business, is open for any position where an exceptional knowledge of the design, construction and operation of both manufactured and natural gas properties is required. Experience includes transmission, distribution and utilization. **398.**

Executive of proven ability with 17 years' experience in all phases of natural gas business desires position in executive capacity with property in stages of construction or in operation. Can give satisfactory references. **399.**

Superintendent with 23 years' practical experience in the production and distribution of manufactured gas desires position with managerial responsibility in small property. **401.**

Engineer (33) college graduate. Thirteen years' experience in combustion engineering, both industrial and house heating line. Worked on the development, design, laboratory testing and installation and service of two of the leading Gas Conversion Burners for house heating. Desires position with manufacturing company or gas company. Location around Cleveland preferred, but will consider other locations. **402.**

SERVICES OFFERED

Superintendent of large gas plant or operating manager of a group of small plants. Experienced in high- and low-pressure systems. Excellent record in operation and construction. Available at once. **405.**

Natural gas **executive** with twelve years' experience in the design, construction and operation of high-pressure transmission lines, compressor stations and town distribution plants. **406.**

Manager-engineer (37) married; thoroughly trained with eight years' practical experience in coal, water, natural, refinery oil still and butane gas, mixing, production, distribution and utilization, high and low pressure. Just finished design and construction of three small plants and distribution systems. Prefer Engineering Department of large utility or District Manager. **407.**

Thermal Engineer (M.S.). Long training and experience with industrial gas applications. Familiar with natural and the various manufactured gases and their practical ratings. Desirable expert advisor to industrial gas sales division, and as organizer and director of fuel economics for heavy industrial consumers. Recognized authority on Combustion. Familiar with utility problems affecting sales conditions. Able to promote and direct practical testing and development to extend the use of gas, especially as chemical manufacturing material. **408.**

Salesman—experienced in sales promotion of all gas appliances including gas house heating and distribution department of gas business; desires position with good opportunity for advancement. Capable of taking charge of sales or distribution department, small company preferred. Will go anywhere. Married. Age 35. References. **409.**

Position of responsibility desired by experienced public utility **executive.** Possessed of diplomacy and ability in meeting the public. Good education, appearance, personality and business judgment. **410.**

Gas engineer, now employed, desires change. Twlve years with large gas apparatus construction company. Experienced in designing, estimating and operating all sizes and types of gas plant equipment. **411.**

Superintendent or Assistant (36) with sixteen years' experience in operation, maintenance and manufacture of water and coal gas plants. Understand high- and low-pressure distribution. Not afraid of hard work, can obtain results. Applicant willing to go anywhere his training and experience can be of use. **412.**

Young practical **engineer,** eight years' experience in installation, maintenance and laboratory testing of all types of gas appliances; would like connection with manufacturer or gas company in New England or upper New York State. **413.**

Salesman having had several years' experience in selling general line of gas equipment. **414.**

Superintendent of small, or **general foreman** of large plant; twenty years' broad experience with various companies in manufacturing and construction. **415.**

Sales and advertising manager, with practical ideas, college education and successful business record; desires position with a public utility or appliance manufacturer. Experience includes retail selling and merchandising, financing, appliance designing and production. **416.**

POSITIONS OPEN

Superintendent competent to operate an oil gas plant (for Mexico). Send full details of training and experience. Knowledge of Latin language desirable but not necessarily essential **0201.**

Experienced gas appliance **salesman** for small manufactured gas plant in East. Salary $75 per month and 10% commission. **0205.**

Leading manufacturer wants man with expert manufacturing knowledge on pressed steel and grey iron construction. Must have successful record and experience on **gas range construction** with ability to take complete charge. Wonderful opportunity for the man who qualifies. State salary earned in the past and give complete detailed information as to experience. **0207.**

Salesman for gas range manufacturer to cover Metropolitan district; want a high class, hard-working producer. Remuneration preferably straight commission basis; would consider drawing account against commission to the right man. **0208.**

Distribution engineers who can sell. Old established and reliable organization wants two or three technically trained men (30 to 40 years) experienced in transmission and distribution of oil and gas for work involving considerable traveling. **0209.**

Engineer-salesman; (young) good address; should be technical graduate and preferably M.E. for position requiring travel. Prefer man with gas company background and some knowledge of utilization equipment. **0210.**

Manufacturer's Representatives to handle well-known line of Circulating Cabinet Heater. Have interesting proposition for representatives who have had experience in handling this type of equipment. **0211.**

Sales engineer (28-35) for large eastern gas company to sell gas to hotels, restaurants, hospitals, etc.; prefer man with gas company experience in this work but experienced manufacturer's representative might be acceptable. **0212.**

Technical graduate for responsible position in large gas plant on Atlantic Seaboard. Must have degree from recognized Engineering College, preferably in Chemical or Mechanical course. Age between 30 and 35. At least five years' operating experience in gas manufacturing plant and considerable experience in handling men desired. Opportunity for advancement for the right man. Give age, education, experience and salary desired and enclose recent photograph. **0213.**

LET US HELP YOU FIND THE MAN YOU WANT

The American Gas Association is equipped to place gas company executives, manufacturers of equipment and others, in touch with competent and experienced personnel by means of advertisements on this page under (1) *Services Offered* and (2) *Positions Open.* Attention is invited to the splendid opportunity presented for making contact via the medium of an advertisement, without charge, handled in extreme confidence, which regularly reaches the hands of all members of the Association. In addition, an up-to-date and carefully classified record is maintained which lists the educational and professional records of executives, operators, salesmen and others interested in making a change.

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